PROCESSES FOR UNLOCKING ACTIONABLE BUSINESS INTELLIGENCE IN SA BANKING INSTITUTIONS

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Opsomming

Die ontsluiting van bruikbare besigheidsintelligensie (BI) vanuit interne en eksterne inligtingsbronne bied 'n uitdaging aan Suid-Afrikaanse bankinstellings, aangesien dit meer as net die implementering van Informasietegnologie behels. Alhoewel al die vernaamste bankinstellings in Suid-Afrika BI-uitsette produseer en benut, is die term BI gewoonlik nie duidelik binne hierdie instellings gedefineer nie, en ontstaan daar soms verwarring oor die werklike betekenis van die konsep. Verder word daar min klem geplaas op die BI-prosesse wat van kritieke belang is vir die lewering van akkurate BI aan intelligensiegebruikers.

Die doel van hierdie navorsing was om te bepaal in welke mate SA bankinstellings erkende intelligensieprosesse, of komponente daarvan, in die praktyk toepas.

Alhoewel al die SA bankinstellings wat aan die navorsing deelgeneem het, die standaard BI proses, wat uit vier of vyf stadiums bestaan, as 'n riglyn vir die bedryf van BI aanvaar, het die navorsing getoon dat slegs sekere stadiums van die erkende BI-proses stapsgewys, en ander soms op 'n ad hoc-wyse, uitgevoer word. Daar is bevind dat daar veral klem geplaas word op die insamelingstadium van die BI-proses. In teenstelling hiermee is bevind dat die analisestadium, wat een van die belangrikste stadiums van die BI-proses is, gewoonlik nie stapsgewys uitgevoer word nie. Trouens, daar is bevind dat deelnemende bankinstellings die klem op die toepassing van sekere analisemetodes geplaas het, in plaas daarvan om tydens die analisestadium 'n spesifieke proses te volg. Daar is ook bevind dat formele prosesse vir die behoeftebepalings- en disseminasiestadiums ontbreek. Hierdie toedrag van sake het die navorser genoop om 'n stapsgewyse BI-proses in die verhandeling voor te stel, wat al die stadiums van die BI proses aanspreek.

In die laaste hoofstuk van hierdie verhandeling word die belangrikste bevindings van die navorsing met die navorsingsprobleem in verband gebring. Die navorser stel ook 'n aantal onderwerpe vir verdere navorsing voor.

Ten slotte is dit belangrik om kennis te neem daarvan dat BI toenemend 'n kritieke rol in SA bankinstellings kan speel namate hierdie instellings pogings aanwend om in 'n uiters mededingende sakeomgewing meer winsgewend, meer kompeterend, en meer kliëntgeorienteerd te raak.

Sleutelwoorde

Besigheidsintelligensie
Intelligensieproses
Bankinstelling
Insamelingstadium
Analisestadium
Behoeftebepalingstadium
Disseminasiestadium

Summary

Since much more than the implementation of IT solutions is frequently required to produce actionable intelligence output, the unlocking of actionable Business Intelligence (BI) for decision-making based on both internal and external information sources, is proving to be a real challenge for SA banking institutions. Although all the major banking institutions in South Africa produce and use BI in some form or the other, the concept is often not clearly defined, and not enough emphasis is placed on the use of recognised intelligence processes to provide intelligence output that is both accurate and actionable.

The aim of this research was to determine whether SA banking institutions applied recognised intelligence processes, or components thereof, while conducting BI assignments.

Whilst the typical four- or five-stage intelligence process, as discussed in BI literature, was commonly accepted by the banking institutions that participated in this research as a benchmark in conducting BI, the researcher established that these institutions placed more emphasis on executing some stages, whilst other stages were executed in an ad hoc manner. In this regard it was found that, while emphasis was placed on the collection stage of the BI process during the 'analysis stage', which is one of the most important stages of the process, no specific step-by-step procedure was followed. In the analysis stage of the process, emphasis was typically placed on the application of the specific methods of analysis. In the stages of the BI processes that deal with BI requirements definition and dissemination of BI products, formal BI processes were also found to be lacking. This prompted the researcher to suggest a practical step-by-step process for dealing with each stage of the BI process.

In the final chapter of this dissertation, the researcher provides a summary of the

key findings in relation to the research problem and identifies a number of areas in which further research should be conducted.

Finally, it is important to note that BI will remain a critical business issue for SA banking institutions in their efforts to become more profitable, more customer centred, and ultimately more competitive in the face of dynamic and challenging market conditions. In this regard BI processes provide a critical framework for the conduct of BI assignments in SA banking institutions.

Keywords

Business Intelligence
Intelligence process
Banking institution
Collection stage
Analysis stage
Requirements definition stage
Dissemination stage

CHAPTER 1: Introduction

1.1 Background

In an attempt to derive business value from the data and information at their disposal and increase their competitiveness, South African (SA) banking institutions have made large investments in Information Technology (IT). As a result of these investments, massive data/information stores have been created and are maintained by banking institutions. These data/information stores range from those that support daily banking operations and customer management, to those that support the analysis of market trends and the activities of competitors.

The unlocking of actionable Business Intelligence (BI) for decision-making from both internal and external information sources is proving to be a real challenge for SA banking institutions, as this requires much more than the implementation of IT solutions to produce intelligence output. Although very few would argue against the use of IT to store, retrieve and support the quantitative analysis of data/information, preliminary research conducted in Europe by Ackerman and Wickens (2001) indicated that few banking institutions have adopted and implemented recognised intelligence processes to produce BI output. As in Europe, there seems to be considerable emphasis on the use of IT solutions to provide BI in SA banking institutions, while possibly not enough emphasis is placed on the use of intelligence processes to provide intelligence output that is both accurate and actionable.

The aim of this research was to determine whether SA Banking institutions apply recognised intelligence processes, or components thereof, while conducting BI assignments. In cases the researcher found that such a process was lacking, the researcher proposed practical steps for dealing with BI assignments.

The following aspects are addressed in this chapter:

- Problem statement.
- The value of the research.
- Method of investigation.
- Clarification of terms (abbreviations and definitions).
- Overview of chapters.

1.2 Problem statement

The central research problem was focussed on the question as to whether SA banking institutions apply recognised intelligence processes, or components thereof, while conducting BI assignments.

The central research problem was subdivided into the following sub-problems:

- What is meant by the concept 'Business Intelligence'?
- What is meant by the concept 'intelligence process', and which intelligence processes are available and suited to SA banking institutions?
- How important is the intelligence requirements definition stage of the intelligence process to the conduct of BI, where do intelligence requirements originate, and which approaches could be adopted in dealing with BI requirements?
- How does SA banking institutions deal with BI requirements? Which steps should be considered during the intelligence requirements stage of the BI process?

- Have SA banking institutions implemented a BI collection process, and if so, which types of information sources were available and typically used for collection purposes?
- How important is the analysis stage of the BI process, and what are the key steps in the analysis process?
- Which methods and steps are commonly used by SA banking institutions during the analysis stage?
- Which steps should SA banking institutions consider during the analysis stage of the BI process?
- How do SA banking institutions disseminate BI products, and which approaches and methods are typically used?
- In which formats are BI products typically disseminated?
- Which steps should be considered during the dissemination stage of the BI process?

1.3 Value of research

The term BI is often used to describe IT solutions that are used to support decision-making processes in business. Although the conduct of BI is often associated with the use of IT and/or strategic business planning activities, in essence BI is about the conduct of intelligence, which, if properly done, would provide quality intelligence products to decision makers. The conduct of intelligence involves much more than the provision of information or access to knowledge. As indicated in figure 1.1, intelligence involves a process that utilises relevant information, analytics and knowledge to produce actionable intelligence products within a specific business context.

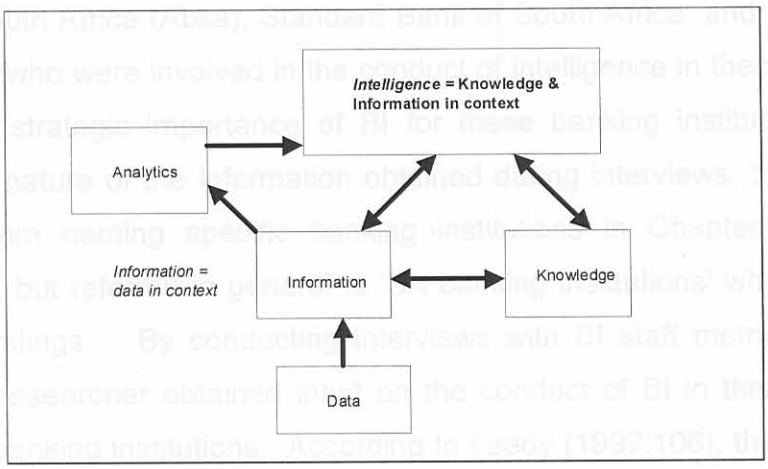


Figure 1.1 Linking intelligence with information, knowledge and analytics

As no specific research on this topic has been done in South Africa (as was confirmed during a search conducted on the Nexus database of the National Research Foundation), this dissertation contributes towards the body of knowledge and fills a gap in the literature on BI. The research is of particular significance for the Information Science discipline as it provides insight into how SA banking institutions process data, information and knowledge in order to produce BI. The findings of this research also provide a framework for SA banking institutions that have no specific processes for the conduct of BI to develop and implement steps suggested for the conduct of intelligence.

1.4 Research methodology

1.4.1 Main research perspective

In this study the main research perspective was of a qualitative nature, since the aim of the research was to describe and explain the BI processes, or components thereof, as applied by SA banking institutions. In this regard

interviews were conducted with senior BI staff members of the Amalgamated Banks of South Africa (Absa), Standard Bank of South Africa, and First National Bank (FNB) who were involved in the conduct of intelligence in these institutions. Due to the strategic importance of BI for these banking institutions and the confidential nature of the information obtained during interviews, the researcher refrained from naming specific banking institutions in Chapters 2-8 of this dissertation, but referred in general to 'SA banking institutions' when discussing empirical findings. By conducting interviews with BI staff members of these banks, the researcher obtained input on the conduct of BI in three of the four largest SA banking institutions. According to Leedy (1997:106), the researcher's approach points to a qualitative research approach in that 'Researchers interact with their participants; categories (variables) emerge from the data, leading to 'context-bound' information, patterns and/or the theories that help in explaining the phenomenon'.

This study was also empirical in nature as primary data (numeric and textual) was obtained as input to address the research problem during the interviews conducted with staff at participating banks. Based on the research design map, as discussed by Mouton (2001:161), this study can be classified as a qualitative evaluation research study because the researcher discussed the implementation of BI processes, or the absence thereof, and did not aim to discuss the outcomes/measurement of implemented processes.

1.4.2 Data collection methods

In conducting this study, the first step followed by the researcher was to review existing literature (non-empirical) on the subject of BI, with specific reference to intelligence processes. This provided a theoretical foundation, which was used to define the key concepts and provide background on existing BI approaches and

processes. The literature also provided the foundation for the empirical component of the research.

During the empirical component of the research, emphasis was placed on obtaining the collaboration of BI staff members of SA banking institutions, and interviews were conducted with participants. Due to the confidential nature of the intelligence assignments conducted in SA banking institutions, the institutions that participated in the research did not provide the researcher with any documentary sources.

1.4.3 Subjects of the study

Data was collected from senior staff members who were employed either in managerial or in consulting positions within the BI structures of participating banking institutions.

1.4.4 Assumptions

It was assumed that some banking institutions in SA would not be willing to divulge all the details of their BI processes or disclose limitations and problems experienced with the processes that are currently applied.

1.5 Limitations

It should be noted that this study did not aim to determine the efficiency or effectiveness of the intelligence processes applied in SA banking institutions, nor did the researcher aim to establish why BI was conducted, and on which topics SA banking institutions focused their BI efforts.

1.6 *Terminology*

1.6.1 Clarification of terms

The following terms that are used throughout the dissertation need to be clarified:

Term	Description
Business Intelligence (BI)	The term BI denotes a process, an organisational function and a product. The process of BI (conduct thereof), which is carried out by individuals or by a formal organisational unit, produces a product named business intelligence (Gilad and Gilad, 1988:1). In this study a clear distinction was made between the process and its output/product by referring to BI processes and BI outputs/products.
Business Intelligence Analyst	A BI staff member that specializes in the analysis, synthesis, interpretation and dissemination of business intelligence.
Business Intelligence Collector	A BI staff member that specializes in the collection of data, information and knowledge for BI assignments.
Business Intelligence Output/Product	Processed information of interest to management about the present and future environment in which the business is/will be operating (Gilad and Gilad, 1988:1).
Competitive intelligence	A process using legal and ethical means for discovering, developing and delivering timely, relevant intelligence needed by decision makers wanting to make their organisation more competitive (Farrell, 2001a).

Term	Description
Customer intelligence	Insights and actionable information about customers' needs and desires (Harvey, 2000).
Intelligence	Information that has been collected, integrated, evaluated, analysed and interpreted (CIA, 2001).
Intelligence analysis	The process of converting information into intelligence products. This includes integrating, evaluating and analysing all available data (CIA, 2001).
Intelligence collection	The process of gathering the information needed to produce intelligence products (CIA, 2001).
Intelligence process/cycle	The process of developing raw information into finished intelligence (CIA, 2001). Intelligence professionals also refer to the execution of the intelligence process as the conduct of intelligence.
Intelligence user	The person, often a decision maker, who has a need for intelligence and, upon receipt of intelligence products, has the option of either utilising or not utilizing the product.
SA banking institution	An institution that is listed by the SA Reserve banking institution as a registered banking institution (locally controlled).

1.6.2 Abbreviations

The following abbreviations were used throughout this dissertation and require further clarification:

Abbreviation	Description
BCG	Boston Consulting Group
BI	Business Intelligence
CEO	Chief Executive Officer

Abbreviation	Description
CI	Competitive Intelligence
CIA	Central Intelligence Agency of the United States of America
CINT	Customer Intelligence
DFD	Decisions from Data
DOD	Department of Defence of the United States of America
DSS	Decision Support Systems
EIS	Executive Information Systems
ESI	E-Solutions Integrator
IM	Information Management
IT	Information Technology
KIQ	Key Intelligence Question
KIT	Key Intelligence Topic
KM	Knowledge Management
MI	Military Intelligence
MIS	Management Information Systems
MOD	Ministry of Defence of the United Kingdom
OLAP	Online Analytical Processing
OSIF	Open Source Information
SA	South Africa(n)
UK	United Kingdom
USA	United States of America
USN	United States of America Navy
WWII	Second World War

1.7 *Chapters of this dissertation*

1.7.1 The first two chapters following the introductory chapter of this dissertation focus on clarifying two key concepts, namely 'business intelligence and 'intelligence process'. In these chapters the emphasis is placed on the theory of intelligence and relevant literature was reviewed as follows:

- In Chapter 2 of this dissertation various definitions for the concept of Business Intelligence were analysed and discussed. The aim of this chapter was to clarify the meaning of the concept and to place it in context with other related terms such as competitive intelligence and customer intelligence, and not to add to the confusion that exists within the business community. A definition for BI was also proposed.

- In Chapter 3, the concept intelligence process was defined. Various recognised intelligence processes/cycles were discussed and the stages/phases of these processes were briefly explained. The CIA intelligence cycle, the Delta competitive intelligence cycle, and a number of other intelligence processes/derivatives of the CIA process were also discussed. A brief discussion of the applicability of military intelligence processes and derivatives thereof in SA banking institutions was also included.

1.7.2 In the following four chapters of this dissertation, the researcher used a generic four stage BI process, as depicted below, to provide a logical structure for this dissertation.

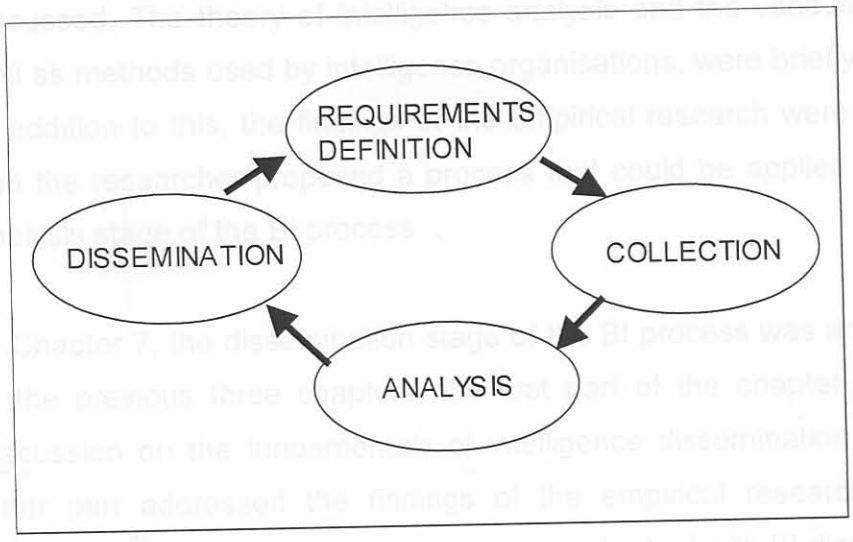


Figure 1.2 A generic intelligence process

One chapter was devoted to each of the four stages of the BI process.

- In the fourth chapter the BI requirements definition stage was discussed in detail. Following a discussion of various theoretical approaches, the approaches used by SA banking institutions were analysed. The researcher also proposed a step-by-step process for use by SA banking institutions when dealing with BI requirements.

- In Chapter 5, the collection stage of the BI process was discussed in detail. Some fundamentals of intelligence collection and the optimal exploitation of intelligence sources were discussed. The findings of the empirical research in SA banking institutions were discussed and the researcher proposed a step-by-step process for the execution of BI collection.

- In the next chapter (Chapter 6), the analysis stage of the BI process was discussed. The theory of intelligence analysis and the various steps, as well as methods used by intelligence organisations, were briefly analysed. In addition to this, the findings of the empirical research were discussed and the researcher proposed a process that could be applied during the analysis stage of the BI process.

- In Chapter 7, the dissemination stage of the BI process was analysed. As in the previous three chapters, the first part of the chapter included a discussion on the fundamentals of intelligence dissemination, whilst the latter part addressed the findings of the empirical research, and the researcher proposed a step-by-step process to deal with BI dissemination.

1.7.3 In the final chapter (Chapter 8), the findings of the research were summarised and evaluated against the original problem statement and the research objectives. In addition to the above, a number of areas in which further research could be conducted were identified.

CHAPTER 2: What is Business Intelligence?

'Sometimes it's almost easier to describe what intelligence is not rather that what it is'.[1]

2.1 Introduction

The term Business Intelligence (BI) is widely used within South African (SA) banking institutions and in the SA business fraternity in general. All the major banking institutions in South Africa produce and use business intelligence in some form or the other. Depending on the particular institution, BI is seen to form an integral part of either a marketing process or a strategic planning function. There are also institutions that view BI as part and parcel of an Information Management (IM), Knowledge Management (KM) or Information Technology (IT) environment.

Although some would argue that, in SA banking institutions, BI as a concept is still in its infancy, others would argue that it is not a new phenomenon at all, and had been used for years in certain institutions before the emergence of information technology and sophisticated BI applications. Initial research suggested that some confusion existed as to the exact meaning of the term 'business intelligence'. This confusion could be attributed mainly to the variety of opinions that exist about BI, some of which are quite contradictory.

The aim of this chapter is:

- To review various perspectives and existing definitions of the term BI
- To clarify the meaning of the concept BI
- To explain the components of a BI system

[1] Fuld. 1995. The new competitor intelligence.

In the four sections following the introduction, the researcher reviews various perspectives on the definition of the term BI. This is followed by a discussion of the links between BI and competitive intelligence (CI) and customer intelligence (CINT). In the section that follows, the researcher proposes a definition for BI, and in the final section the components of a BI system are briefly discussed.

2.2 *Understanding the term 'intelligence'*

Understanding the term 'business intelligence' essentially revolves around gaining a sound understanding of the meaning of the words 'business' and 'intelligence'. As a rule, SA banking institutions have no difficulty to explain their core business. In this regard, detailed explanations are usually to be found in the annual reports of such institutions. Therefore there seems to be no confusion regarding the exact nature of what the term 'business' refers to in a banking context when defining BI. Rather, it seems to be the term 'intelligence' that creates some of the confusion, as this term is subject to various interpretations.

Many more diverse opinions are likely to come to the fore as BI emerges as a critical business issue for SA banking institutions in their efforts to become more profitable, more customer centric, and ultimately more competitive in the face of dynamic and challenging market conditions.

Despite the growing number of opinions expressed around BI, there are few useful definitions to be found. Without adding to the confusion, the best approach to follow in order to clarify the meaning of BI, is to start by analysing various explanations and definitions of the term 'intelligence'.

2.3 The meaning of intelligence: The Intelligence Profession's perspective

To find an appropriate definition for the term 'intelligence', the researcher first and foremost reviewed the definitions developed by the intelligence profession, and in particular the Military. In the Military, intelligence is regarded as indispensable from both a strategic and a tactical perspective, and the concept continues to evolve as military forces are confronted by new and dynamic threats.

Military intelligence (MI) often conjures up images of espionage, which influences perceptions on the concept intelligence. Although it could be argued that MI has traditionally shown a strong inclination towards espionage, it should be noted that espionage was, and still is, merely a method for collecting information. Given the lack of technology available for intelligence purposes prior to the Second World War (WWII), espionage was prominent since other means of collecting military information were limited. However, MI is more than the use of spies and also includes an analytical component. Even Sun Tzu referred to the analytical nature of military intelligence when he wrote 'In order to use them [spies], one must know fact from falsehood' (Clavell, 1981:93).

As Farrell (2001a:online) points out, 'military intelligence developed greatly in sophistication during the Second World War with emphasis on analysis, including the use of the first computers'. After WWII, the onset of the Cold War and the emergence of new technologies saw increasing amounts of information collected, and making sense of this increasing flow of information became the focus of military intelligence processes. This probably influenced the definition of intelligence, as many definitions refer to the process of analysing information from disparate sources.

In the Post WWII era, Sherman Kent emerged as one of the most prominent thinkers and writers on the subject of intelligence. His thoughts, originally published in 1949, provided the foundation for the intelligence process/cycle as it is still practised by the United States of America's (USA) intelligence agencies (both military and civilian). Kent (1966:vii) refers to intelligence as 'the knowledge, which our highly placed civilians and military men must have to safeguard the national welfare'. He continues to explain that 'As an activity, it is the pursuit of a certain kind of knowledge; as a phenomenon it is the resultant knowledge'. Kent emphasises the simplicity of the concept, which he deems to be both simple and self-evident. He also points to the importance of having intelligence on which action can be taken when he states, 'intelligence work remains the simple, natural endeavour to get the sort of knowledge upon which a successful course of action can be rested'.

Firstly, it is important to note that Kent makes a clear distinction between the process of conducting intelligence or 'activity', as he refers to it, and the output of this process, which is intelligence. He refers to this output as a certain kind of knowledge. Secondly, he also refers to intelligence as an organisational entity that is responsible for generating a certain kind of knowledge. Finally, he emphasises the fact that is essential for intelligence output to be actionable.

For the purpose of clarifying the term 'intelligence', Kent made a valuable contribution when he pointed out that it has various meanings, even within the intelligence profession, and that care should be taken when using the term to distinguish between the intelligence process, intelligence output/product, and intelligence organisation.

The Ministry of Defence of the United Kingdom (MOD) (2001:online) defines intelligence as 'information that has been processed into a product that can be exploited for its value in analysing a particular situation'. In this definition a clear

distinction is made between information and intelligence, as information is processed (put through a process) in order to compile an intelligence product. Information is thus an input to a process of which the output is an intelligence product. Also noteworthy is the emphasis on the importance of the intelligence product being exploitable. This ties in with Kent's notion of using intelligence for making decisions and taking a specific course of action. Another point to take note of in this definition is the reference made to 'a particular situation'. This implies that intelligence products are not produced in an ad hoc manner, but that information is processed and intelligence produced with a specific situation or decision in mind. It is also interesting to note that, unlike many others, this definition makes no reference to the collection of information. This could point to a definite distinction made by the MOD between the collection of information for intelligence purposes, and the actual process of turning information into intelligence products.

The USA Navy (USN) (2001:online) defines intelligence as 'the product resulting from the collection, processing, integration, analysis, evaluation and interpretation of available information concerning foreign countries or areas". This specific definition is also used by the USA Department of Defence (DOD), but in addition the DOD (2001:online) also refers to intelligence as 'information and knowledge about an adversary obtained through observation, investigation, analysis or understanding'.

In the above definitions the emphasis is placed on intelligence as the product of a process. This is critical for an understanding of the term 'intelligence', because in order to produce the intelligence product, an intelligence process needs to be followed. Therefore, it could be argued that information that has not passed through this process cannot be classified as intelligence. In the case of the USN definition, the emphasis is on using available information as input into the intelligence process before producing the intelligence output/product. Of interest

is the DOD's inclusion of knowledge as an integral part of the intelligence input. It is thus both information and knowledge that are collected, processed, integrated, analysed and interpreted before the intelligence product is compiled. This differs from Kent's view in that knowledge is not regarded as an output of the intelligence process, but as an input into the process.

It is also of interest to note that, in contrast to the MOD's definition, both the USN and the DOD definitions refer to the collection of information as an integral component of the conduct of intelligence.

The USA Central Intelligence Agency (CIA) (2000:online) elaborates on the previous definitions by making a clear distinction between information, intelligence and finished intelligence. Within the CIA, information is referred to as 'raw data from any source, data that may be fragmentary, contradictory, unreliable, ambiguous, deceptive or wrong'. Intelligence is defined as 'information that has been collected, integrated, evaluated, analysed and interpreted'.

In analysing the above definitions of intelligence, a number of common themes are evident:

- A clear distinction is made between information and intelligence, and information that has not yet been processed is definitely not intelligence.
- Intelligence output or products are produced once an intelligence process has been applied. This process includes the analysis and interpretation of information.

- There is a strong tendency to emphasise the 'product' component of intelligence.

- If intelligence has to add value, it must be actionable.

- The distinction drawn between knowledge and intelligence is less clear than that drawn between information and intelligence. Only the DOD makes provision for knowledge as an input for and during the intelligence process, whereas Kent refers to intelligence as a kind of knowledge.

From the above analysis it could be surmised that there is a degree of clarity and agreement as to the definition of intelligence within the intelligence profession, and that these definitions provide a sound foundation for understanding the meaning of the term, as well as for the formulation and evaluation of other definitions.

2.4 *Business Intelligence: A business perspective on intelligence*

Even though the intelligence profession seems to have a clear understanding of the term intelligence, many different and contradictory definitions of business intelligence exist. An analysis of the available literature on BI revealed that a clear distinction could be made between writers/organisations that aim to explain the concept and those that actually formulate definitions of BI. For the purposes of this dissertation, those involved in the explanation and definition of BI in the business world were classified as follows:

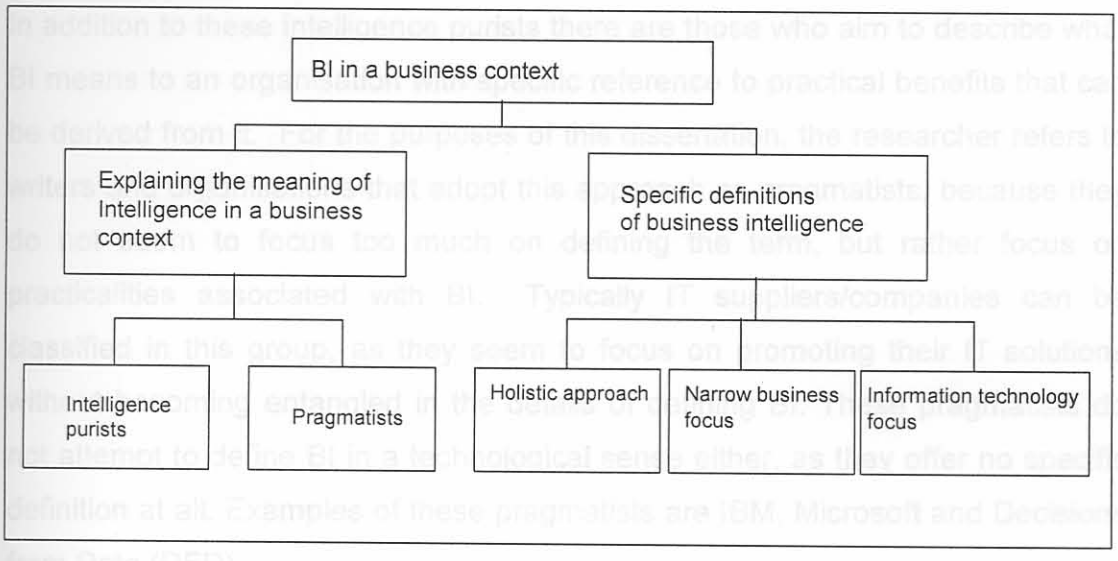


Figure 2.1 Framework for the classification of BI definitions

Although writers such as Fuld, Baumard and Youngblood do not propose a specific definition of BI, they attempt to explain the meaning of BI in business terminology. It could be argued that proponents of this school of thought may actually influence the understanding of BI in the business community to a large extent, since they attempt to explain BI to the business community rather than to bore them with definitions and semantics. It is likely that some proponents of this school of thought contributed in making BI 'a confusing buzzword'.

Within this school of thought there are those whose reasoning is fundamentally sound, as they base their views on the definitions of the intelligence profession and could be referred to as intelligence 'purists'. Although they do not propose a specific definition, they attempt to explain key issues related to BI, such as the differences between information and intelligence in a business context, and the need for intelligence to be actionable. In this regard they make a valuable contribution to creating a better understanding of BI.

In addition to these intelligence purists there are those who aim to describe what BI means to an organisation with specific reference to practical benefits that can be derived from it. For the purposes of this dissertation, the researcher refers to writers and organisations that adopt this approach as pragmatists, because they do not seem to focus too much on defining the term, but rather focus on practicalities associated with BI. Typically IT suppliers/companies can be classified in this group, as they seem to focus on promoting their IT solutions without becoming entangled in the details of defining BI. These pragmatists do not attempt to define BI in a technological sense either, as they offer no specific definition at all. Examples of these pragmatists are IBM, Microsoft and Decisions from Data (DFD).

A second school of thought can be classified as those who have specific views on and definitions for BI. To describe this school of thought as a homogenous group would be inaccurate, as at least three distinct subgroups that can be identified in this regard.

Firstly, there are those that adopt a holistic approach towards BI and writers such as Gilad and Gilad, and Kahaner and Brackett, could be described as adopters of a holistic approach towards BI. This approach results in definitions that encompass all types of intelligence required by business.

Secondly, there are those that see a distinct difference between BI and other forms of intelligence required by business and have a narrow focus when it comes to the definition of BI. In this dissertation, those that support a narrow business focus regarding BI are classified under the heading 'narrow business focus'. Typically, the main points of difference between those with a holistic approach and the proponents of a narrow business focus revolve around two issues. Firstly, the holistic view supports the use of both internal (company)

information and external information for BI purposes, whereas some of the narrow business focus groups emphasise that BI is restricted to the analysis of internal company information. Secondly, the narrow business focus group argues that BI excludes certain forms of intelligence, e.g. competitive intelligence or customer intelligence. This argument could also be linked to the differences in opinion on whether BI is internally focussed or not, as competitor intelligence and, to a lesser degree, customer intelligence, rely on external information. Examples of writers that could be classified as having a 'narrow focus' include Farrell and Osterfelt.

Thirdly, there are those that define BI in the context of IT tools and applications and are classified as having an IT focus. Their definitions emphasise the technology component of BI, in some cases to such an extent that it would seem unthinkable to have BI without IT. This view of BI is supported mainly by IT suppliers, but it also enjoys the support of some research institutions. Although not IT suppliers, two of the leading IT research groups, the Gartner Group and the META Group, can be classified as proponents of this school of thought. It should also be noted that not all IT suppliers necessarily support this approach, and some prefer not to support a specific definition, but rather to express their own views on BI, as is the case with the 'pragmatist' school of thought.

2.4.1 Explaining intelligence in a business context

2.4.1.1 Intelligence Purists

A well-known writer on the subject of intelligence, particularly competitive intelligence, is L.M. Fuld. In his book 'The new competitor intelligence' (1995: 23), he attempts to simplify the concept of intelligence by explaining it as follows: 'in its most basic description, intelligence is analysed information'. In dealing

with the definition of intelligence, Fuld (1995:24) acknowledges that 'the term is ill-defined or misunderstood'. He refers to the interchangeable use of the terms data, information and intelligence as one of the main causes of this confusion.

Whereas a clear distinction is made between information and intelligence in the intelligence profession, the same does not apply in the business community. Therefore, Fuld's explanation of intelligence emphasises the differences between data, information, analysis and intelligence. He refers to data as 'shattered bits and pieces of knowledge', and to information as a 'pooling of these bits of knowledge'. He then continues to argue that analysis is in fact 'distilled information', whereas intelligence is 'the implication that will allow you to make a decision'.

Although the reasoning behind his placing emphasis on differences between data, information and intelligence is appreciated, it is not clear whether his explanation actually clarifies the true meaning of intelligence or not. No mention is made of the intelligence process and the product (output) dimensions of intelligence. Furthermore, his references to knowledge could also add to the confusion. Having said that, it could be argued that there is some similarity with the DOD's view that knowledge is used in the process of generating intelligence.

Baumard, who is not as well known as Fuld, provides an important contribution to this discussion on the meaning of intelligence. Baumard (1992: 83) identifies four components associated with intelligence. He distinguishes between intelligence ability, intelligence activity, knowledge, and intelligence organisation. He also argues that intelligence can be defined as 'a product' or output, a monitoring process, an activity, or a type of knowledge. In this regard he supports the arguments of Kent, who also emphasises the different views of the term intelligence, but includes intelligence ability. He explains intelligence ability as 'to understand and to solve problems'. The fact that Baumard appreciates the

importance of having able humans involved in the intelligence process is significant, as this requirement is not particularly evident in many other explanations and definitions of intelligence.

Baumard also explains that 'intelligence is a compilation, analysis and dissemination of information about the intentions, capabilities, weaknesses and strengths of internal and external actors of a given environment'. Although he does not attempt to define BI specifically (the term 'business' is not used in this definition), it is important to note that he refers to both internal and external actors. This implies that when conducting intelligence assignments, a business would not focus on external intelligence (e.g. competitors or customers) only, but should also have an internal focus and an environmental focus. This is similar to the approaches followed by those that adopt a holistic approach to the definition of BI. Even more important is his explanation of what intelligence is not, when he concludes that 'intelligence is not a synonym for information and it is not synonymous with espionage'.

Youngblood (cited in Kern, 1997:online) also emphasises the difference between information and intelligence when she states that information is 'unevaluated raw data of any description – in contrast, intelligence is information which has been analysed and synthesised. The crucial difference between intelligence and information is that intelligence is actionable and linked directly to a decision'. It is important to note that Youngblood includes the term 'synthesised' in her explanation of intelligence. Although many definitions of intelligence include the term 'analyse', few actually include the term 'synthesise'. A proper interpretation of information usually requires both a process of analysis and a process of synthesis before intelligence products can be produced. (This will be discussed in more detail in Chapter 6.) Another important component of her explanation is the focus on the fact that unlike intelligence, information is not actionable. Again this could be traced back to Kent's definition, as discussed in paragraph 2.3.

The notion of intelligence being actionable is also supported by Cyracle's (2001:online) Customer Intelligence Glossary, which explains that 'Intelligence is actionable because it is explicit and unambiguous. Actionable intelligence guides decisions and strategy'.

The resemblance between the views expressed by the intelligence purists and the definitions used by the intelligence profession are quite clear, especially as the above writers emphasise the following issues:

- Intelligence is more than information.
- Intelligence is actionable.
- Knowledge and intelligence are closely related. Fuld sees knowledge as an input in the process of generating intelligence, while Baumard, like Kent, deems some kind of knowledge to be the output of the intelligence process.

The following key issues are identified by the 'purists':

- Information not only needs to be analysed, but also needs to be synthesised for intelligence purposes.
- There is a human component in intelligence to take note of.

2.4.1.2 Intelligence 'Pragmatists'

In addition to the intelligence purists there are a number of writers/organisations that attempt to explain BI in a business context without necessarily attempting to explain the meaning of intelligence, or to define the term BI.

BI solution providers such as IBM and Microsoft provide a pragmatic view of BI in a business context. In the case of IBM, BI is explained in terms of addressing the need of companies to find answers to their business-related questions. They propose that, in order to address these business questions, a business intelligence system needs to be implemented. In an IBM paper titled 'The IBM Business Intelligence Software Solution' and written by White (1998:online) a section of the paper, under the heading 'What is Business Intelligence', is devoted to explaining the evolution of BI-related technology without defining the term at all.

Basically this also applies for Microsoft, who published a number of BI-related articles on their Web site. One of these articles, titled ' Overview of Business Intelligence' Microsoft (2001:online), also fails to provide any idea as to how BI should be defined. Rather, the paper emphasises the importance of implementing BI solutions, the value of BI systems, and business drivers for implementing such systems. As they quite rightly point out, 'the more relevant, useful intelligence you have at your fingertips about your business, your customers, your partners and your operations – the more your organisation can make better decisions and increase competitive advantage'. Sadly they fail to offer any explanation of what is meant by the term 'intelligence'.

Another IT supplier, Decisions From Data (DFD) also emphasises the need for a business approach towards BI, without providing a clear definition of the term. According to DFD (2001:online), 'BI is about solving business problems'. This corresponds with the views of IBM. They also point out that, 'without a clear understanding of what is driving the business and in particular of what information gap is hurting the business, the wrong solution will be built', and emphasise the importance of understanding business drivers and identifying and addressing an organisation's information gaps. The importance of building a solution for the so called 'information gap' reflects DFD's focus on the design and

development of IT solutions. It should be noted that BI is aimed at finding a solution for an organisation's intelligence requirements (gaps), and not necessarily its information gaps. Microsoft seems to have grasped this in their discussion of BI.

Although these BI pragmatists do not make any contribution with regard to proposing definitions for BI, they emphasise key issues that are worth taking note of:

- BI plays an important role in finding answers to business questions.
- A BI system can assist businesses in addressing their business questions, information gaps and intelligence requirements. Typically, IT solutions would form an integral component of such a system.
- Intelligence can provide competitive advantage to an organisation.

2.4.2 Defining Business Intelligence: explicit views and definitions

Whereas those referred to in the previous section attempt to explain the meaning of intelligence in business terms without giving a specific definition, there are fortunately others who have proposed specific definitions for BI.

2.4.2.1 A holistic approach to BI

The proponents of this school of thought emphasise a holistic view of intelligence in business and the inclusion of a broad spectrum of intelligence activities under the banner of BI. They do not view BI as separate from Competitive Intelligence (CI), Customer Intelligence (CINT), or any other forms/types of intelligence.

Gilad and Gilad (1988:1) define BI as follows: 'The term BI is used to denote a process, an organisational function and a product. The process or activity of BI, which is carried out by individuals or by a formal organisational units, produces a product that is termed business intelligence'. The strong resemblance between this definition and the views expressed by Sherman Kent is quite evident.

In order to clarify the meaning of the term 'product', Gilad and Gilad refer to Greene's definition (cited in Gilad and Gilad, 1988:2) in this regard, which defines intelligence products as 'processed information of interest to management about the present and future environment in which the business is operating'. The emphasis on processed information is prominent, as is the case when the 'intelligence purists' discuss intelligence. This confirms that although a business may not be a professional intelligence organisation, information must be processed before intelligence products can be delivered. Gilad and Gilad explain that it is important to distinguish between data and intelligence, data being 'the raw material that is composed of facts – and intelligence, which is information digested, analysed and interpreted for the purpose of decision-making'.

Another point of interest is the emphasis Greene places on 'processed information of interest to management' and his focus in this definition on 'the present and future environment in which the business is operating'. Although it could be argued that this definition is not specific enough in terms of the intelligence that a business requires, it provides an important guideline as to what forms of intelligence BI includes. The message conveyed is clear: the interest of management and the operating environment of the business determines the scope of BI.

Expanding on the above it could therefore be argued that BI is an encompassing term that describes the intelligence required to conduct business, irrespective of

whether it is intelligence about competitors, customers, markets or other important business issues.

Kahaner (1998:16) adds another dimension when he defines intelligence as 'a systematic and ethical programme for gathering and analysing information...to further company goals'. The emphasis placed on ethics and programme management by Kahaner can be linked to his definitions of competitive intelligence (CI) and the focus on ethics by professional bodies associated with the competitive intelligence industry. In this, case referring to BI, the conduct of BI should also be ethical and should exclude activities such as industrial espionage. Successful BI projects would typically require some project/programme management, and in this regard Kahaner adds important dimensions to the definition of BI. Also of importance is his reference to company goals, which suggests that BI is about generating intelligence to further company goals, regardless of whether these goals have an internal or an external focus.

Brackett (1999:online) defines BI as 'a set of concepts, methods and processes to improve business decisions using information from multiple sources and applying experience and assumptions to develop an accurate understanding of business dynamics'. According to Brackett, BI involves 'the integration of core information with relevant contextual information to detect significant events and illuminate cloudy issue. It relies on the exploration and analysis of unrelated information to provide relevant insights, identify trends and discover opportunities'.

In this definition no mention is made of the output/product nor of the organisation associated with BI as is done by Gilad and Gilad. The emphasis is on the process and methods components of BI. Brackett sees the purpose of BI as ' to support business decisions and assist to create an understanding of business dynamics'. In this regard there is no exclusion of competitive, customer or

market intelligence. Of particular interest in his definition is the reference made to 'multiple sources' of information, as well as the integration of core information with contextual information. This seems to suggest that Brackett refers to the use of both internal and external information during the conduct of BI. The important role of human intervention in BI is also evident in his reasoning as he explicitly mentions the application of experience and assumptions during the BI process. No specific mention of IT is made in his definition, although the term 'concepts' could refer to concepts such as data warehousing and on-line analytical processing (OLAP), which are usually associated with the analysis of information for BI purposes.

Jonathan Wu (2000:online) also supports this holistic approach when he defines BI as 'the process of gathering meaningful information about the subject matter being researched'. He points out that BI can be understood by viewing it from both a data-analysis perspective and an information-systems perspective. He proposes that BI, viewed from an information-systems perspective, is the 'system that provides users with online analytical processing or data analysis' capability whereas, viewed from a data-analysis perspective, it is a process that allows for the collection and analysis of data and information in order to draw conclusions or make assumptions. His information-systems perspective corresponds to the views expressed by those who have a narrow IT focus when defining BI, whereas his data-analysis perspective is more aligned with the views of the intelligence purists.

The IT solutions supplier E-Solutions Integrator (ESI) (2001:online) supports a holistic approach to BI, which it defines as 'the acquisition and utilisation of fact-based knowledge to improve a business's strategic and tactical advantage in the marketplace'. Again the term 'knowledge' is used in a definition of BI, in this case to describe the intelligence product.

There are a number of important issues that come the fore when analysing these holistic definitions:

- BI is processed information.
- Ethical and programme-management dimensions are associated with BI.
- Knowledge and intelligence are closely related and no clear distinction is drawn between the two terms.
- With the exception of the definition proposed by Wu, no definition refers to IT solutions.

2.4.2.2 A narrow business focus towards BI

When definitions of BI are analysed, one of the questions that usually comes to mind is whether BI includes or excludes the intelligence products that organisations require on competitors, customers, suppliers, markets and other environmental factors. Whilst those adopting a holistic approach to BI include all relevant forms of intelligence in their definitions, some definitions of BI explicitly exclude some of the above. Other writers are less explicit in excluding types of intelligence from their definitions, but seem to focus only the internal use of BI. To add to the confusion, there are those that believe that BI is focussed on the analysis of internal data and information only, and that BI does not involve the analysis and interpretation of external information.

Adrian Farrell (2001b:online) takes a narrow business focus on BI when he defines it as the 'gathering, management and analysis of large amounts of raw data on a company's customers, products and services and all the transactions in between'. Although the definition clearly identifies the various stages of the intelligence process involved, it is clear that BI is deemed to exclude intelligence on competitors, suppliers and the business environment in which the company operates. This distinction appears to point to the exclusion of any intelligence

that requires input from external information sources. The distinction seems to be somewhat artificial, since the conduct of customer intelligence also requires that competitors' actions towards customers be analysed and interpreted.

Farrell makes no reference to the inclusion of either internal or external information for analysis purposes, and the assumption could be made that he does not view BI as purely focussed on internal data/information, as organisations frequently collect external information on customers (e.g. market research). Having said that, his reference to the term 'transactions' suggest that customer information is primarily collected around the organisation's interaction through transactions with a customer. The analysis of 'transactional data' is often the focal point for IT suppliers when they design and develop BI solutions.

Another writer who supports this narrow business focus is Susan Osterfelt (2001:online), who defines BI as ' the ability of an organisation to understand and use information relevant to its gainful operations'. Although a first impression may be that she also subscribes to a holistic approach because her definition is so broad, she emphasises the internal use of BI in some of her other arguments. She stipulates that ' the goal of BI is internal – to enable business leaders to make better decisions that will translate into increased profitability'. It could be argued that this focus on decision-making in support of profitability narrows the field of BI within a company and has a strong tendency towards the analysis and interpretation of financial information. In this definition, BI would therefore provide intelligence that could be directly related to decisions regarding the profitability of an organisation. As profitability is a major focus area in most businesses, and in particular within banking institutions, Osterfelt's emphasis on the importance of the link between BI and decisions to increase profitability is certainly valid. Yet it could be argued that BI is used within businesses to support decisions and develop plans that do not have a direct bearing on profitability, even an indirect link exists between the decisions made and the ultimate

performance of a company.

When analysing these focussed business definitions, one might ask what the underlying motivation would be for these writers to differ from the holistic approach. The researcher is of the opinion that the exclusion of certain types of information or intelligence from the definition of BI only serves to complicate the issue and does not add much value to the discussion if the reasons for exclusion are not explained.

2.4.2.3 An information technology focus towards BI

In their White Paper on BI, ESI (2001:online) points to the prevalence of IT-focussed BI definitions as follows: 'those writings that do offer a definition, generally provide a narrow one that encompasses only the tool or technology being discussed.' ESI does, however, point out that it is the multiplicity of meaning attached to the term 'intelligence' that sees the term used accurately 'within a variety of unrelated contexts'. According to ESI, this has promoted the confusion surrounding BI as many IT suppliers can and do claim that their products are BI solutions. In this regard ESI is specific in pointing out that 'technologies and tools are only of use if they contribute to intelligence'. BI is therefore not as much about technology as the IT suppliers would lead us to believe, yet many definitions of BI, particularly those provided by IT/BI suppliers, would be incomplete without including the IT perspective.

Even in some business schools the IT focus of BI is emphasised. The Georgia State University Business School (2002:online) defines BI as 'utilising technology for gathering, storing, analysing and providing access to data to help a company make better business decisions'. This creates the impression that BI cannot be practised without technology, and that technology is required in each of the

stages of the intelligence process that have been mentioned. Another point to consider is the emphasis placed on data in this definition, and the fact that no mention is made of information or knowledge in the BI process.

The Gartner Group, an IT research institution, also has an IT focus in its definition of BI. It has been suggested in relevant literature (Hashmi, 2000:online) that the term 'Business Intelligence' was introduced by Howard Dresner of the Gartner Group in 1989. According to the Gartner Group (2003:online), the term is used 'to describe a set of concepts and methodologies designed to improve decision-making in business through the use of facts and fact-based systems. Fact-based systems consist of executive-information systems, decision-support systems, enterprise-information systems, management-support systems, online analytic processing, and newer technologies such as data mining, data visualization, and geographic information systems'. The META Group (as quoted by Sun, 2002:online) describes BI as 'a set of technology and management processes providing knowledge and management information to make business decisions'. Although the above definitions provided by the Gartner and META groups suggest that BI is more than just technology through the use of terminology such as 'concepts', 'processes' and 'decision-making', the emphasis remains on IT.

As can be expected, IT suppliers of BI tools have a strong IT focus when defining BI. It should be noted that finding definitions of BI on the web sites of major suppliers of BI solutions could prove to be a challenging exercise. Even when contact is made with these suppliers and questions are asked regarding their corporate definitions of BI, clear definitions are not necessarily forthcoming. The IT company Sun (2002:online) defines BI as a 'set of strategic business tools for generating information'. Again the importance of technology is implied through the use of the term 'tools', which, in an IT context, usually refers to applications that allow the extraction and manipulation of data.

The main contribution of IT-focussed definitions of BI to this dissertation is that they identify the key IT components that could be utilised in support of BI processes. This is evident from an analysis of the definitions provided by the Gartner Group, in which mention is made of specific technologies that are suitable for use in BI processes (e.g. executive-information systems, decision-support systems, enterprise-information systems, management-support systems, online analytic processing, data mining, data visualization, and geographic information systems).

2.5 The link between BI and competitive intelligence

If some BI definitions are considered to be vague, the same would apply to definitions of CI. Farrell (2001a:online) defines competitive intelligence as 'a process –using legal and ethical means for discovering, developing and delivering timely relevant intelligence needed by decision makers wanting to make their organisation more competitive in the eyes of the customer'. The Society of Competitive Intelligence Professionals (2003:online) describes CI as 'a systematic and ethical program for gathering, analysing and managing external information', while Bernhart (1993:18) defines it as 'an analytical process that transforms disaggregated competitor and market data into actionable strategic knowledge about competitors'

The three definitions given provide different perspectives on the actual scope of CI. Farrell's definition emphasises the importance of making the organisation more competitive through intelligence, whilst the other definitions focus on monitoring and analysing the competitive environment. As is the case of BI, there appears to be no agreement on the exact scope of CI. None of the above definitions makes any reference to the term BI, yet it could be argued that making an organisation more competitive could require that all relevant

intelligence available to an organisation, regardless of how it is defined, should be utilised.

Monitoring and analysing the competitive environment is in fact a function of strategic analysis and strategy formulation, and therefore an integral part of any business. For this reason it seems to be somewhat artificial to view CI and BI as separate forms of intelligence. The procedures followed to produce BI and CI output are in fact exactly the same. Ultimately the objective should be to provide integrated intelligence products to decision makers, and not to fragment the intelligence effort. Therefore the researcher is of the opinion that CI is a form of business intelligence that is utilised to address an organisation's BI requirements with specific reference to its competitive environment.

2.6 *The link between BI and customer Intelligence*

Like BI, customer intelligence (CINT) is a term widely used to describe a number of different concepts, and opinions differ to some extent. In some cases IT vendors and analysts use terms such as 'analytical' Customer Relationship Management (CRM) or 'intelligent' CRM to position customer intelligence within an organisation. There seems to be agreement on the purpose of CINT, as Eckerson (1999:online) points out that 'customer intelligence enables companies to better understand their customers so they can more effectively acquire, retain, service and/or cross-sell those customers to meet strategic business objectives'. Stewart (2001:online) rightly states that 'there are a number of factors that go into making a successful customer focused organisation. One of the key factors is greater customer intelligence and the effective use of that intelligence'.

With regard to customer intelligence Brewer (2001:online) says that 'fundamentally, intelligence is applied information. Customer intelligence, applies customer information to improve business'. In their Customer Intelligence

Glossary, Cyracle (2001:online) define customer intelligence as 'the ability to collect, analyse, predict and anticipate your customers' trends, habits and wants'. In this regard reference is made to the rich and complex information made up of customers' data, opinions, attitudes and emotions.' This points to the fact that CINT involves much more than simply utilising data about a customer's past actions and transactions with a company. CINT requires an understanding of the motivations behind the customer's actions.

Price (2000:online) takes a typical IT focus of CINT when se states that 'customer intelligence refers to solutions (data warehouse, customer analytical applications and marketing automation tools) which provide marketers and other business managers with customer-level information and the ability to develop and execute event-triggered marketing campaigns'. His strong focus on marketing is also evident, suggesting that the use of CINT limited to marketing campaigns. Eckerson (1999:online) makes a clear distinction between CINT and BI when he says, 'customer intelligence (as opposed to business intelligence) refers to the tools and strategies for collecting, analysing and leveraging customer information. Customer intelligence marries decision support tools with database marketing and customer relationship management'.

Osterfeld (2001:online) argues that customers are entitled to obtain information from their banking institutions and must have access to their information stored within these institutions. She point out that businesses must 'enable the intelligent customer - this means using customer information and analysis to support CRM for the organisation and customer managed relationships'. Research conducted by Ackerman and Wickens (2001:12) and involving 33 banking institutions in Europe, the Middle East and Africa, indicated that 46 per cent of the banking institutions surveyed believed that customers should be provided with information. This implies that customers will not necessarily obtain intelligence from a banking institution, but will receive information packaged in a

user-friendly format, or be allowed access to customer information.

The following important issues come the fore when the CINT definitions are analysed:

- The focus is on using customer information as input. This includes information on behaviour, attitudes, etc., and not only transactional data.
- The purpose of CINT is to gain a better understanding of customers in order to use that understanding to the organisation's advantage (e.g. cross-selling).
- Emphasis is placed on predicting customer needs and behaviour.
- Providing customers with information and/or intelligence will require that organisations share their information and intelligence with their customers. Currently the focus seems to be on allowing customers access to their information contained in banking institutions.

As in the case of competitive intelligence, there are no convincing arguments to exclude CINT from the definition of BI. Ultimately, customers are the lifeblood of businesses, and without them there would be no purchases of services or goods. The realisation of the pivotal role of customers in business has led to the emergence of customer-centric business models and strategies. Like competitive intelligence, CINT also has a specific focus, but should be part of an integrated BI effort of an organisation. Therefore the researcher is of the opinion that CINT is a form of business intelligence that is utilised to address an organisation's BI requirements with specific reference to its customers.

2.7 A proposed definition of BI

On the basis of and analysis of the above explanations and definitions, the researcher proposes that BI be defined as follows:

Business Intelligence is: The actionable output of a BI system, which

collects and turns data, information and knowledge into the intelligence required for the conduct of business.

At first glance this definition may seem to focus only on the output/product of BI and the process involved in generating that output. As Gilad and Gilad point out, BI has a product, an organisation, and a process. In this definition, these components, which will be discussed in the section that follows, are part of what we will refer to as a BI system. Furthermore, the focus of BI is addressed by making reference to the business' requirement for intelligence. This does not exclude any form/type of intelligence from the definition, but emphasises the importance of addressing intelligence requirements for the conduct of business. Therefore, should a business require intelligence about its customers and competitors, as many businesses do, both CINT and CI would form part of its BI effort. The same applies with regard to intelligence required on market conditions and the macro socio-economic and political environments, as well as supplier and partner intelligence, to name but a few.

2.8 Components of a BI system

The BI system referred to in the above definition does not imply that it is an IT system. Although IT would play an important part in many BI systems, it is primarily an enabler to allow BI staff members to extract and manipulate information. The BI system referred to in this definition could be depicted as consisting of various components, as indicated in Figure 2.2:

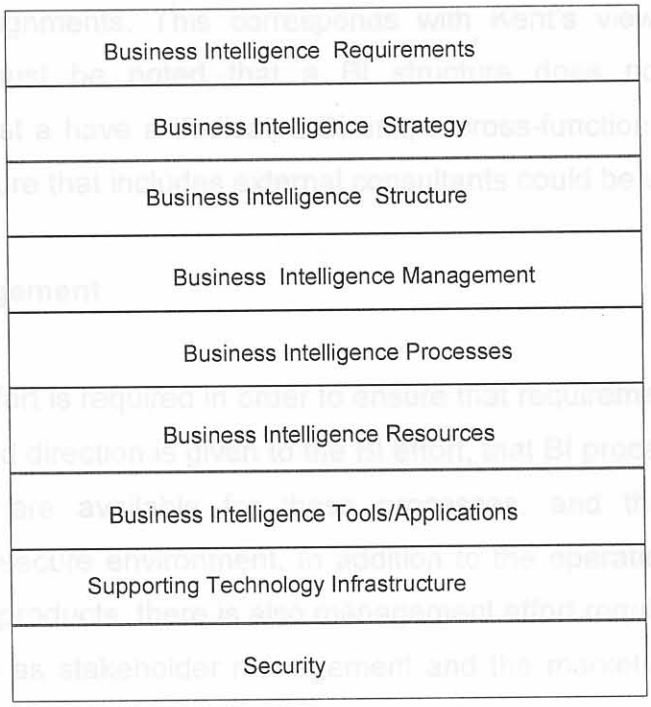


Figure 2.2 Various components of a BI system

2.8.1 BI requirements, strategy and structure

The aim of BI is to provide the required intelligence for the conduct of business. This provides a framework for the BI system. Without these requirements the BI system would have no specific focus and could produce intelligence that is not relevant to the requirements of the business. This emphasises the need for intelligence requirements to be formulated, defined, analysed, prioritised and verified with the intelligence user before embarking on any BI initiatives. A company's BI requirements could range from specific intelligence required for decision-making purposes (strategic or tactical) to intelligence related to the internal or external environment of the company. In order to address these requirements, a BI strategy must be formulated and planning must be done to ensure that all BI resources are available and properly utilised during BI

assignments. In addition, some form of organisational structure is required to conduct BI assignments. This corresponds with Kent's views of intelligence structures. It must be noted that a BI structure does not imply that an organisation must a have a dedicated BI unit; a cross-functional structure could exist, or a structure that includes external consultants could be used.

2.8.2 BI management

Management effort is required in order to ensure that requirements are analysed, that planning and direction is given to the BI effort, that BI processes are applied, that resources are available for these processes, and that intelligence is conducted in a secure environment. In addition to the operational management of producing BI products, there is also management effort required for supporting processes such as stakeholder management and the marketing of BI services, planning and financial management, to name but a few.

2.8.3 BI processes

The core process of BI is to turn data, information and knowledge into actionable intelligence. Processes such as requirements analysis, data and information collection, information retrieval and analysis, collation and interpretation of information, and dissemination of intelligence products are key to the conduct of BI. These processes are discussed in more detail in Chapter 3 of this dissertation.

2.8.4 BI resources

Depending on the requirement, the conduct of BI could be resource intensive. What usually comes to mind is the IT resources required to manage the data that

need to be collected, stored and analysed. BI resources required to support the BI processes go far beyond the IT resources required and include skilled BI staff, sources of data/information/knowledge, BI methodologies and financial resources.

2.8.5 BI applications and supporting technology

Due to the high volume of electronic data associated with the conduct of BI, it is almost unthinkable that BI could be produced without the use of BI applications/tools and the supporting technology. As discussed previously, according to the Gartner Group, the types of BI applications and technologies include management information systems (MIS), executive information systems (EIS), decision support systems (DSS), OLAP, end-user query tools, data mining tools and data-warehousing technologies.

2.8.6 BI security

Intelligence produced by the BI system could contain confidential findings and also use confidential information and knowledge as input into the process of producing intelligence. Ensuring that relevant staff have access to intelligence and that unauthorised access to intelligence is prevented, requires security measures that range from physical security to document security, data base security, implementation of network security, the vetting of BI staff, and conducting investigations in cases where security breaches are suspected.

From the above discussion it is clear that the BI system referred to in the definition as proposed by the researcher, consists of various components, each playing a significant role in order to produce actionable intelligence output.

2.9 Conclusion

Given the various opinions and definitions that are to be found in the literature and in use within the business community, it is not surprising that confusion exists as to the true meaning of BI. In an attempt to determine the actual meaning of the term BI, it was found that the definitions provided by the intelligence profession do in fact promote an understanding of the term. With the exception of some differences that occur regarding the use of the term 'knowledge', the definitions used in the intelligence profession are clear and unambiguous.

Unfortunately the same cannot be said about the different schools of thought related to BI. It seems as if very few have succeeded in building on the definitions of the intelligence profession without complicating the issue. Gilad and Gilad, Kahaner, Baumard and Youngblood, have successfully translated the meaning of intelligence in a business context. In contrast, Fuld's discussions on data, information and intelligence tend to cloud the issue, while writers such as Farrell and Osterfelt appear to argue for artificial boundaries between various forms of BI.

As could be expected, the IT suppliers have a strong tendency towards the view that BI is about IT and that it cannot be conducted without the use of IT. Although some suppliers seem to focus on taking a business-oriented view of BI, this could be done merely to form part of their marketing strategies towards business leaders. ESI and Cyracle seem to be exceptions to the rule in this regard.

The definition proposed in this chapter provides a definition that is fundamentally sound from an intelligence profession point of view, and supports the holistic approach towards BI. Although not attempting to use popular business

terminology, the meaning of BI is clear: BI is the intelligence required to conduct business.

CHAPTER 3: Intelligence processes

'The purpose of systematizing the BI process is to organise the activity to efficiently produce intelligence useful for decision-making'.[2]

3.1 Introduction

Having defined BI in the previous chapter, it is important to identify and analyse the processes used the generate intelligence output. The purpose of the intelligence process is to produce actionable intelligence output. Miller (2000:13) explains that the intelligence process 'generates insightful recommendations regarding future events for decision makers rather than generating reports to justify past decisions. The process offers critical choices regarding future decisions that provide a desired competitive advantage'. The process of turning data, information and knowledge into intelligence output to deliver insightful recommendations and intelligence regarding future events often require a step-by-step approach. Without following the steps of an intelligence process to produce intelligence output, BI staff members run the risk of disseminating intelligence of inferior quality, which could potentially have a negative impact on business performance.

The aim of this chapter is to explain the importance of, and various stages/steps in the typical intelligence processes, some of which could be considered for application in SA banking institutions.

In this chapter, the importance of the intelligence process as a component in the BI system, a basic intelligence process and several benchmark intelligence processes are discussed. This is followed by a discussion of a number of

[2] Gilad and Gilad. 1988. The business intelligence system: a new tool for competitive advantage.

commercial/business derivatives of the CIA intelligence cycle. The differences between various intelligence processes, as well as specific concerns regarding these intelligence processes, are also discussed. This is followed by a brief discussion of some of the views of those scholars that challenge the validity of commonly used intelligence processes. In the next section of this chapter, a brief look will be taken at the Alpha Cycle, an intelligence process that takes cognisance of objections against the typical four/five-stage intelligence process and which could be considered for implementation in SA banking institutions.

3.2 *The importance of intelligence processes*

For the conduct of intelligence, the importance of the process by which information is turned into intelligence cannot be overemphasised. Kahaner (1998: 43) refers to this process as the basic unit of an intelligence system. In the previous chapter of this dissertation (see paragraph 2.3), the researcher argued that information and knowledge has to be subjected to a process consisting of various steps in order to generate intelligence output. Without the application of an intelligence process, intelligence output cannot be produced. It should be noted that intelligence processes are but one component of a BI system, and that intelligence processes require inputs and resources to be able to generate the required output (Also refer to paragraph 2.8).

3.3 *A basic intelligence process*

In its most basic form, and based on the definition of intelligence as discussed in Chapter 2 of this dissertation, an intelligence process could be depicted as follows:

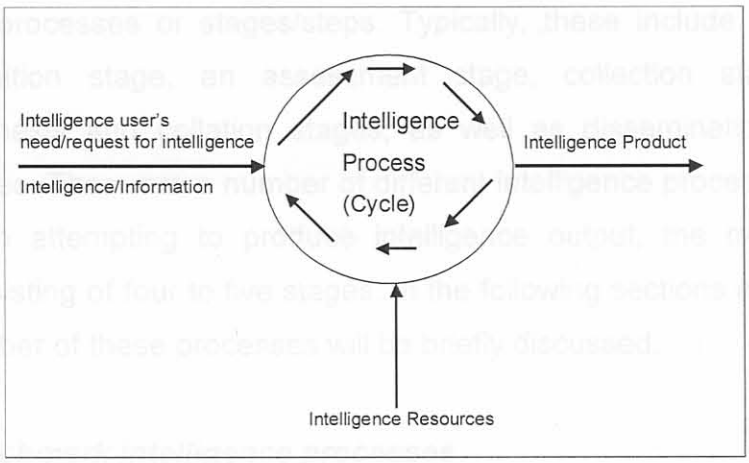


Figure 3.1: A basic intelligence process

- **Input for the process**. Typically, the process is triggered by an intelligence user who needs to deal with a business issue or has to make decisions that require access to intelligence. In addition to a specific requirement for intelligence, existing data, information, knowledge and previously generated intelligence output could also act as inputs to the process. A typical example is where intelligence users are provided with intelligence products and, after having digested the contents, they identify a requirement for additional intelligence products.

- **Output of the process**. Typically, intelligence outputs are referred to as intelligence products and provided to intelligence users through written or verbal communication. The various formats of intelligence outputs will be discussed in more detail in Chapter 7 of this dissertation. Ultimately the output of the intelligence process should address the initial requirement for intelligence as identified by the intelligence user. If this is not the case, the process is triggered again.

- **The stages of the process**. The process itself consists of a number of sub-processes or stages/steps. Typically, these include a requirements definition stage, an assessment stage, collection stages, analysis, synthesis and collation stages, as well as dissemination and storage stages. There are a number of different intelligence processes to consider when attempting to produce intelligence output, the majority of them consisting of four to five stages. In the following sections of this chapter, a number of these processes will be briefly discussed.

3.4 Benchmark intelligence processes

Kahaner (1998:43) points out that the intelligence processes used by organisations to generate competitive intelligence are often similar to the intelligence process that is employed by the CIA and other intelligence services world-wide. The origins of these intelligence processes could be traced back to the research of Sherman Kent.

3.4.1 Kent's intelligence process

Kent's thoughts on the activities involved in the conduct of intelligence could be viewed as a forerunner of several of the typical intelligence processes applied in both intelligence and business organisations. The researcher is of the opinion that Kent's research on intelligence processes not only provided the foundation for many of intelligence processes currently in use, but that his research should still be used as reference point when dealing with difficulties/issues posed by the application of intelligence processes.

Although Kent (1966:151) refers to intelligence activities, he points out that it is better to discuss these activities as a process. He identifies the seven stages in the intelligence process as follows:

- **Stage 1**: The appearance of the problem requiring attention.
- **Stage 2**: Analysis of this problem to discover which facets are of actual importance.
- **Stage 3**: Collection of data relevant to address the problem as was analysed in Stage 2. In this regard Kent points out that this stage involves two steps, a 'survey of data already at hand' and 'an endeavour to procure new data to fill gaps'.
- **Stage 4**: Critical evaluation of collected data.
- **Stage 5**: Study of the evaluated data in order to find some meaning, which he describes as the 'moment of hypothesis'
- **Stage 6**: Collecting data to confirm or deny the hypothesis formulated in Stage 5
- **Stage 7**: Establishing which hypotheses are the most accurate, and presenting the findings to intelligence users to enable them to deal with the problem

Kent (1966:158) acknowledges that his intelligence process poses some methodological problems. Of particular interest is his reference to the difficulty involved in identifying and formulating those problems that require the attention of intelligence staff. He suggests that the answer to this problem lies in 'picking a man who already knows a good deal about the substantive area in which he is supposed to ask questions, and who has an inquiring mind; and then see to it that he has ready access to every scrap of new incoming evidence on it' The initiation of the intelligence process will be discussed further in paragraph 3.6.2.

In analysing this seven-stage process it should be noted that Kent's process was designed long before the advent sophisticated analysis techniques and the supporting information technology that is today commonly used to produce intelligence. His process was therefore geared towards the use of hypothesis

generation for analysis purposes. Having said this, there are a number of key issues for intelligence processes that emerge from Kent's research including the following:

- Of specific importance in Kent's process is the emphasis placed on the need to analyse and understand the problem at hand before attempting to collect information.
- This process also requires a survey of existing data/information before attempting to collect new data/information. This could prevent the inefficiencies created when new information is sought while it may already be available.
- Kent also points out that collection should take place during more than one stage of an intelligence process, especially when hypotheses are generated and need to be verified.

3.4.2 The CIA intelligence cycle

Ackerman and Wickens (2001: 47) mention the fact that the intelligence process applied by the CIA is often viewed as a benchmark intelligence process for both government and business purposes. This process, also referred to as an intelligence cycle, is described by the CIA (2001:online) as 'the process by which raw information is acquired, gathered, transmitted, evaluated and made available as finished intelligence'.

The intelligence process of the CIA consists of five steps, as depicted below:

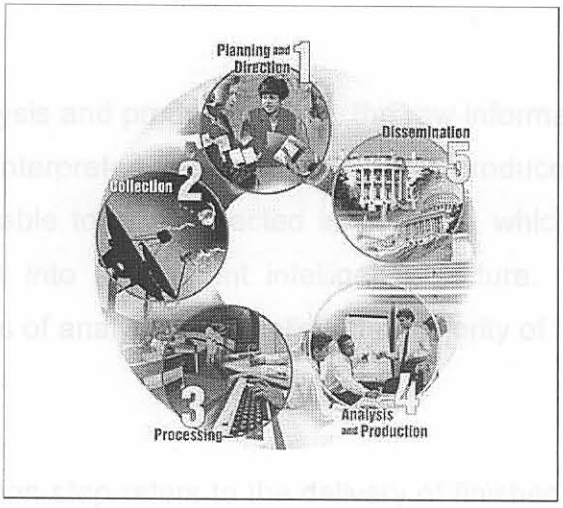


Figure 3.2 The CIA intelligence cycle (Central Intelligence Agency; online)

The key elements of each of the five steps illustrated above are:

- The 'planning and direction' step, which refers to the ongoing management of the intelligence effort. Typically, the intelligence process starts with the identification and analysis of intelligence needs. This leads to the planning of specific collection activities and the directing of all the other steps in the process, which in turn culminates in the delivery of intelligence products.
- During the collection step, raw information required to address intelligence requirements is collected from various information sources by using a variety of collection techniques.
- The processing step involves the 'conversion' of collected raw data into a format that is usable for the analysis step that follows. A typical example of this is the translation of information obtained in foreign languages into the language required by an analyst. Another good example is the conversion of

data from disparate systems in order to view all collected data in a particular format.

- During the analysis and production step, the raw information is evaluated and analysed, and interpreted intelligence output is produced. This step requires analysts to be able to take collected information, which could be disparate, and integrate it into a coherent intelligence picture. In order to do this, various methods of analysis are applied, the majority of them being qualitative in nature.

- The dissemination step refers to the delivery of finished intelligence products to those that provided the requirement for the intelligence. This often leads to further intelligence requirements being formulated, which sets the whole intelligence process in motion again

3.4.3 The application of these intelligence processes in business

It is important to bear in mind that both Kent's process and the CIA intelligence process were specifically designed for the conduct of intelligence assignments for government or military purposes. These processes are therefore particularly suited to those organisations that have the delivery of intelligence as their core business, and have access to the resources required to execute these processes.

In the case of banking institutions, the core business of the organisation does not revolve around the production of intelligence products, but around the provision of banking services and products to clients. Therefore, the application of the processes designed for governmental/military intelligence services in a commercial environment might not be suitable, especially when these processes

prove to be complex and require substantial resources that are often only available to very large corporations and governments.

3.5 Business derivatives of the CIA intelligence process

Based on the CIA intelligence process a number of intelligence processes have been developed for use in the business environment.

3.5.1 Kahaner's process

For competitive intelligence purposes, Kahaner (1998:43) describes an intelligence process very similar to the CIA intelligence cycle. This process, which consists of four steps, can be depicted as follows:

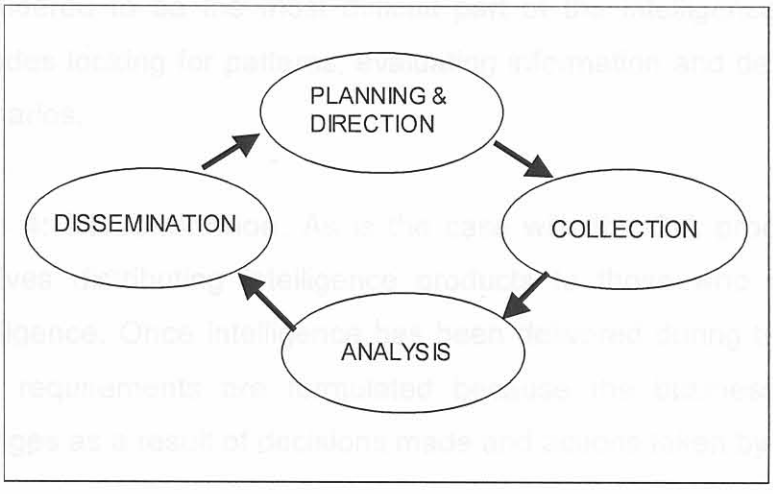


Figure 3.3 The intelligence cycle proposed by Kahaner (Kahaner 1998:44)

- **Step 1: Planning and direction**. During this step, the focus is on obtaining the intelligence requirements of management staff. Once this is completed, BI staff members need to decide how to address these requirements, and which approach should be adopted in this regard.

Kahaner (1998:44) also points out that this step is both the first and the last step of the BI process.

- **Step 2: Collection**. During this step new information, also described by Kahaner as 'raw information', is gathered. This departs from Kent's views that existing information should first be reviewed before collecting new information, but is similar to the collection stage of the CIA process. Kahaner also emphasises the importance of collecting information in the public domain. In addition to collecting information, this step also includes the processing of information into an electronic format for manipulation and storage purposes.

- **Step 3: Analysis**. Kahaner points out that this step is generally considered to be the most difficult part of the intelligence process and includes looking for patterns, evaluating information and defining different scenarios.

- **Step 4: Dissemination**. As is the case with the CIA process, this step involves distributing intelligence products to those who requested the intelligence. Once intelligence has been delivered during the fourth step, new requirements are formulated because the business environment changes as a result of decisions made and actions taken by management.

The researcher is of the opinion that Kahaner's view of the linkage between dissemination and the first step (planning and direction) should be viewed with caution. Kahaner (1998:44) maintains that disseminated intelligence would necessarily lead to decisions and actions, and that these actions would in turn 'spur further intelligence needs' because the 'company's situation undoubtedly will change based on those actions'. This may be oversimplifying the process,

and the researcher's concern with this reasoning is that it is based on the assumption that disseminated intelligence products are used for decision-making and are acted upon. In the researcher's experience, it is not uncommon to find that disseminated intelligence is not acted upon, in which case, according to this intelligence process, the process stops and no new requirements are generated. This intelligence process also does not specifically indicate how the intelligence process could be triggered by anything other than disseminated intelligence. Often environmental information, informal discussions amongst intelligence users, and business events trigger requests for intelligence – disseminated intelligence is not a prerequisite for the intelligence process.

3.5.2 Fuld and Co's intelligence process

Fuld and Co (2001:online) describe an intelligence process that consists of five consecutive steps, each one linked to the other, and emphasise the linkages between the steps as follows: ' it is necessary to plan (step 1) before you retrieve (steps 2 and 3), and retrieve before you analyse in step 4'. They further emphasise the importance of following all the steps, as the omission of any of the steps would impact the quality of the intelligence output produced.

The intelligence process proposed by Fuld and Co can be depicted as follows:

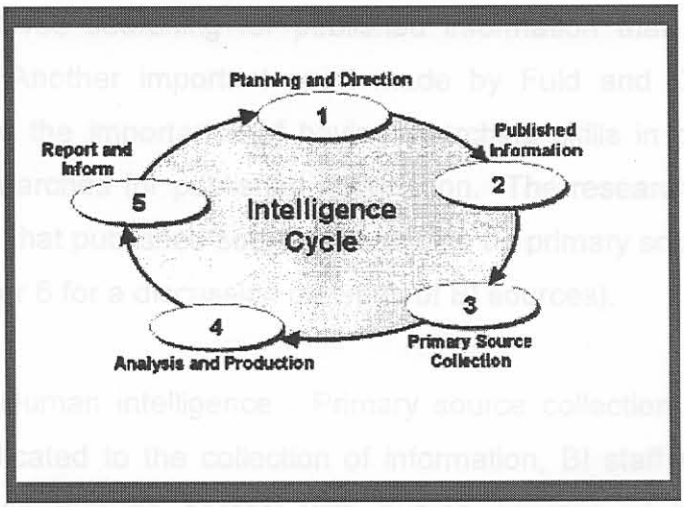


Figure 3.4 The intelligence process proposed by Fuld and Co (Fuld and Co; online)

- Step 1: Planning and direction. During this step, BI staff members need to identify the key questions and decisions that need to be addressed by intelligence output. This seems to suggest that the intelligence process does not necessarily require intelligence output, as suggested by Kahaner, but that key questions and decisions may act as triggers for the intelligence process. Fuld and Co (2001:online) point out that intelligence teams often rush through this step, but that it could be as crucial as the analysis step since it provides the direction or framework for the execution of the other steps of the intelligence process.

- Step 2: Secondary/Published information collection. According to Fuld and Co (2001:online), this step involves collecting information from existing publications. This differs from the process described by Kahaner, as well as the CIA process, in that this step is but one of two steps in the

process dedicated to the collection of information. Fuld and Co (2001:online) warn that BI staff members need to be aware that this step also involves searching for published information that is not available online. Another important point made by Fuld and Co (2001:online) relates to the importance of having searching skills in order to conduct proper searches for published information. The researcher would like to point out that published sources could also be primary sources. (Also refer to Chapter 6 for a discussion on types of BI sources).

- Step 3: Human intelligence - Primary source collection. In the second step dedicated to the collection of information, BI staff members collect information through contact with human sources of information. The importance of these sources for the collection step cannot be over-emphasised. From the researchers perspective, Fuld and Co's (2001:online) process may create some confusion, as humans are not necessarily primary sources, especially when they provide information that they have heard from another person or have read. In such cases the person would be a secondary source. Of importance though is the fact that Fuld and Co (2001:online) elevates the importance of collecting from human sources, a key issue that seems to be understated in the intelligence process discussed by Kahaner in paragraph 3.5.1.

- Step 4: Analysis and production. This step involves all the tasks required to turn collected data and information into intelligence. According to Fuld and Co (2001:online), this step involves more than the synthesis of information, but also includes an analysis process in order to provide judgements, possible outcomes and conclusions. Fuld and Co (2001:online) point out that the analysis step is the most important step of the process, and that quantitative analysis is not deemed to be 'true

analysis' from an intelligence perspective.

- Step 5: Report and inform. This step of the intelligence process, involves delivering the output of the analysis and production steps to intelligence users. In this regard, Fuld and Co (2001:online) stresses the importance of intelligence staff of being able to deliver intelligence output in a coherent and convincing manner to intelligence users.

From the researcher's perspective, this is an improvement on the process as described by Kahaner and seems to be an enhancement of the CIA intelligence process. Of some concern is the focus placed on collecting information, with two specific steps dedicated to this activity. The researcher's main concern regarding this process, as was the case with Kahaner's process, is that the collection of new information is conducted without having assessed the existing internal information and existing intelligence at the disposal of BI staff. Especially when dealing with time and financial constraints, it may be more efficient for BI staff members to first review information that is already available to them before spending time and possible financial resources on collecting new information. In Kent's process (par 3.4.1), new information is collected in order to address the information gaps only after the information already available has been reviewed.

3.5.3 The Delta Competitive Intelligence Cycle

One of the intelligence processes that warrant further study is the Delta Intelligence Model developed by Adrian Farrell (2001a). This model which, could also be described as a competitive intelligence derivative of the CIA process, has a unique approach in some respects and consists of six phases, which can be depicted as follows:

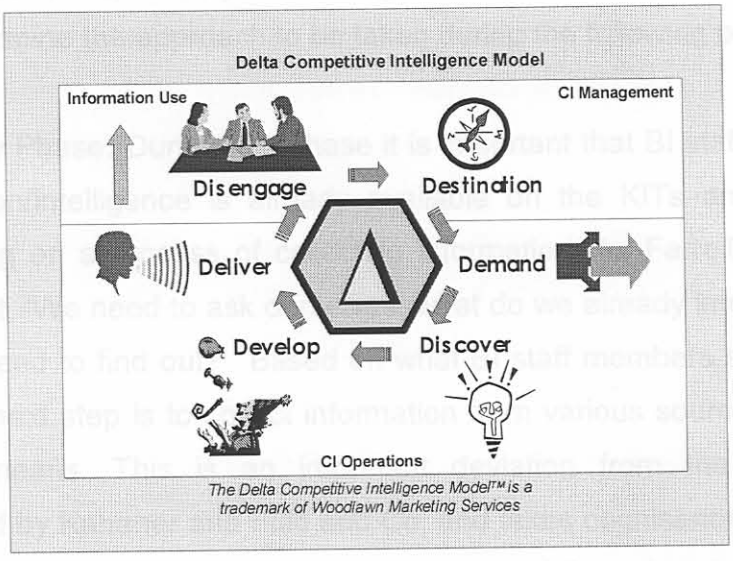


Figure 3.5 The Delta competitive intelligence model (Farrell; online)

- Destination Phase: This is the first phase of the process and the emphasis is on planning and the development of the intelligence capabilities in order do deal with BI assignments. Farrell (2001a:online) points out that this phase is not part of the 'day-to-day' intelligence activity as it involves the training of intelligence staff and the implementation of systems and processes to deal with BI assignments. Only once the organisation has created the capacity to deal with intelligence assignments, can these assignments be accepted and dealt with.

- Demand Phase: With the BI capability in place, the demand phase is the phase during which an intelligence assignment starts. The first step in this phase deals with the identification of intelligence requirements/needs. Typically, it is during this stage that Key Intelligence Topics (KITs) and Key Intelligence Questions (KIQs) are formulated in order to specify exactly which

intelligence is required by the intelligence users. During this stage, BI staff also determine the approach to be taken during the following phases.

- Discovery Phase*:* During this phase it is important that BI staff discover what information/intelligence is already available on the KITs and KIQs before embarking on a process of collecting information. As Farrell (2001a:online) points out, 'We need to ask ourselves, what do we already know and what do we still need to find out?' Based on what BI staff members still need to find out, the next step is to collect information from various sources by legal and ethical means. This is an important deviation from the processes as described by Kahaner and Fuld and Co, and takes cognisance of the views of Kent on the importance to conduct a 'survey of data already at hand before collecting new information' (also refer to Stage 3 of Kent's process in paragraph 3.4.1).

- Development Phase*:* During this phase all relevant pieces of information that have been discovered are analysed in order to create a meaningful picture. This corresponds with the views of Kent (Stage 5). This phase typically involves the evaluation of information in terms of relevance and accuracy before collected information is collated, analysed and synthesised. During this phase it is important to determine if enough relevant information was collected in order to address the BI requirement. If not, additional collection should be done, which could see the process moving from the development stage backwards to the discovery phase.

- Delivery Phase*:* During this phase, the intelligence generated through the analysis and synthesis steps of the development phase is stored and disseminated to intelligence users. This phase is similar to the dissemination steps/stages of the previous intelligence processes. Of importance is the

emphasis that Farrell places on storage. Kahaner refers to the processing of information in order to electronically manipulate and store information as part of the collection step. What Farrell refers to is the storage of intelligence products in order to make them accessible for later use.

- Disengagement Phase: This phase is unique to the Delta process and includes activities such as the debriefing of intelligence users and a specific process of reflection in order to improve the intelligence process. Farrell (2001a:online) argues for the inclusion of this phase as follows: 'This is an important element missing from the CIA intelligence process. Single-loop learning takes place through reflection on what occurred and by identifying ways to improve the process next time'. The inclusion of this step ensures quality in the process.

3.6 Challenging typical intelligence processes

A number of scholars challenge the notion of producing actionable intelligence output by applying the typical four/five stage intelligence process. They argue that it is an oversimplification of a complex undertaking. In this regard, the views of Underwood and Baumard are of significance.

3.6.1 A Project Management approach

Underwood (2002:9) argues that the traditional view of describing the intelligence process 'does not reveal what the process is really about'. He points out that the actual process is usually more complex than is suggested by the typical four-stage cycle.

Underwood (2002:10) describes a nine-stage process that could be depicted as follows:

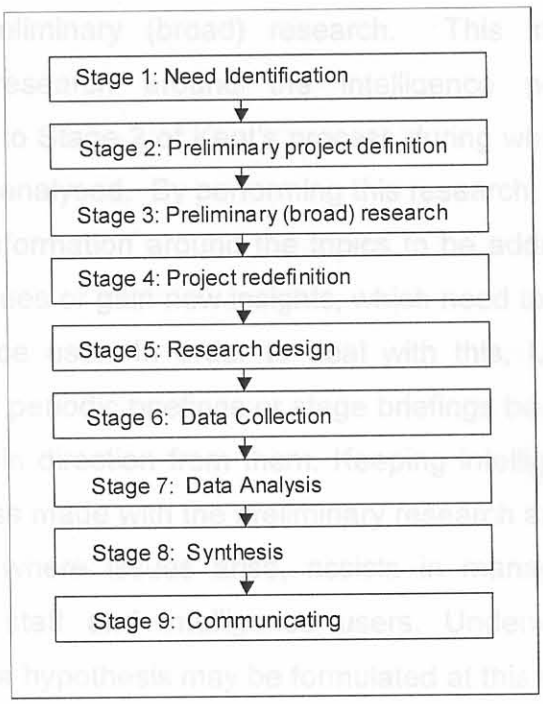


Figure 3.6 A nine stage intelligence process (Underwood 2002:10)

- Stage 1: Need identification. The first stage of this intelligence process revolves around accurately determining the actual need of the intelligence user that is supposed to be met by the BI. Of particular importance during this stage is that intelligence staff should be informed about the impact or importance of the project, the urgency, and the turnaround time required. Like Farrell and Fuld, Underwood does not see the need for disseminated intelligence to trigger the intelligence process.

- Stage 2: Preliminary project definition. Based on the understanding of the actual need for intelligence, a preliminary project definition is completed. This determines the scope of the project. The next stage in this process is

triggered on the basis of this definition of the scope of the project.

- Stage 3: Preliminary (broad) research. This stage involves doing preliminary research around the intelligence need and shows a resemblance to Stage 2 of Kent's process during which the problem to be addressed is analysed. By performing this research, BI staff members not only obtain information around the topics to be addressed, but may also encounter issues or gain new insights, which need to be communicated to the intelligence user. In order to deal with this, Underwood (2002:49) suggests that periodic briefings or stage briefings be held with intelligence users to obtain direction from them. Keeping intelligence users informed of the progress made with the preliminary research and consulting them to obtain input where issues arise, assists in managing the relationship between BI staff and intelligence users. Underwood (2002:50) also explains that a hypothesis may be formulated at this stage of the process.
- Stage 4: Project redefinition. Underwood (2002:50) suggests that, owing to the fact that new issues may be identified during the preliminary research, which could impact the scope of the project, a redefinition of the project might be required.
- Stage 5: Based on the definition of the project and the preliminary research, a research design is compiled. In this regard Underwood (2002:50) points out that 'no two projects are identical', and that it is important that the final research design must be able to address the intelligence users' needs.
- Stages 6-9: These stages are similar to the stages of the typical intelligence processes as discussed in paragraph 3.5. Data/information is

collected during Stage 6 and collected data is analysed during Stage 7. In Stage 8, the analysed information is synthesised and interpreted. This leads to the final stage, which involves 'communicating the knowledge'.

From the researcher's perspective it is important to take note of the following:

- At various stages in this process, Underwood proposes that communication take place between intelligence staff and intelligence users. He uses the term 'stage briefings' to indicate that intelligence users are 'briefed' on the status of the project and that input is obtained from them.

- Another important contribution made by Underwood is the detailed breakdown of the planning stage of the BI process. As opposed to the typical intelligence process approach, where planning and direction is depicted as the first stage of the process, in this process there is an initial planning stage and once the broad research is completed, the re-planning/definition stage is executed. This assist with addressing the misconception that planning is only done during the first/initial stage of the intelligence process.

- The clear distinction made between analysis and synthesis as two separate stages in the process also helps to explain that the 'analysis process' depicted in intelligence processes consist of more than just the analysis of information, but also requires a definite synthesis stage.

- Finally, Underwood's process applies some project management fundamentals in dealing with intelligence assignments. This allows for the optimal utilisation of BI resources and ultimately could enhance the

management of relations between intelligence users and intelligence staff members.

3.6.2 Challenging the notion that the intelligence process is a 'cycle'

Baumard (Sigurson and Tagerud, 1992:88) questions the validity of explaining and depicting the intelligence process as a cycle. In a stance that could be considered controversial, Baumard (Sigurson and Tagerud, 1992:88) argues that depicting an intelligence process as a cycle is in fact an attempt by intelligence managers to move 'from self deception to self-deception', because intelligence output, which could by faulty, is used as a starting point for the definition of new intelligence requirements. According to Baumard, in the typical intelligence process it is not possible to define requirements for intelligence without using intelligence output, and none of the steps in the typical intelligence process can exist before the preceding stage of the intelligence process. To address this issue, he (Sigurson and Tagerud, 1992:88) suggests that 'one must seek a starting point because of the impossibility of doing anything else'. In Baumard's view, the answer to this dilemma is to perform environmental scanning and, based on what is learned from this process, requirements for intelligence could be generated without using the intelligence output of the intelligence process as the starting point. This powerful argument, which challenges the typical view of intelligence processes as being cyclical in nature, emphasises the need to have a logical starting point for the intelligence process.

3.7 Taking note of shortcomings and issues with intelligence processes

In the previous two sections a number of intelligence processes were discussed as well as some of the concerns scholars have with these intelligence processes. In this regard it should be noted that there are intelligence processes designed

that take cognisance of the shortcomings of the processes previously discussed. The Alpha cycle is an example of an intelligence process that was designed for use in banking institutions and to address some of the shortcomings of other processes. The Alpha Cycle is another derivative of a number of military and commercial intelligence processes and was initially designed for the conduct of customer intelligence assignments in financial services institutions (Ackerman and Wickens, 2001:50). Although designed to support customer intelligence projects, this process, with some adaptation, could also be used for other types of intelligence assignments. The Alpha Cycle differs to some extent from traditional views of the intelligence process in that it takes cognisance of Baumard's issue of having a definite starting point and incorporates some project-management concepts, as was done by Underwood. The Alpha cycle also supports the notion that the conduct of intelligence is conducted in a cycle, but differs from typical intelligence processes in that intelligence requirements may be initiated from parties external to the organisation, i.e. its customers.

To address Baumard's issue regarding the need for a specific starting point before defining intelligence requirements, the Alpha intelligence cycle revolves around a business issue, question or problem that needs to be resolved by the organisation or customer. This is similar to Kent's reasoning in Stage 1 of his process (see paragraph 3.4.1). This business issue, question or problem could be identified as a result of a number of factors, including scanning the business environment, discussing and identifying new business trends, demands from customers, changes in the business environment and increased threats from competitors, to name but a few. In addition to this, business issues, questions or problems could be identified as a result of intelligence products that were disseminated to intelligence users. This allows for a situation where intelligence is disseminated to intelligence users to address a particular issue and, based on the intelligence received, they identify further needs for intelligence.

The Alpha Cycle consists of five stages and could be depicted as follows:

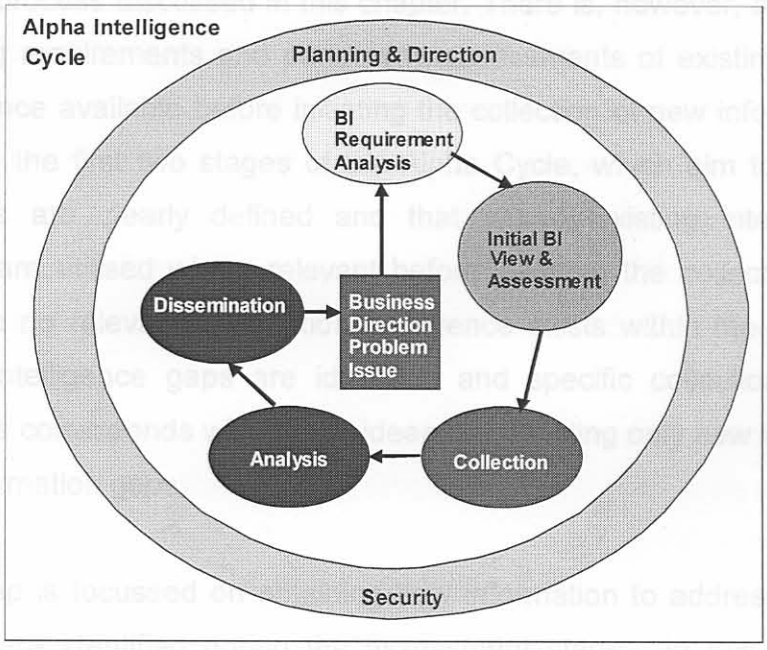


Figure 3.7 The Alpha Cycle (Ackerman and Wickens 2001:50)

As opposed to those intelligence processes where 'planning and direction' are deemed to represent a specific stage in this process, this is not the case with the Alpha cycle. Ackerman and Wickens (2001:50) argue that planning and direction are essential to all the stages in the intelligence process and are done throughout the process, and should therefore not seen as a step of the process itself, but rather a pre-requisite to ensure that the process is executed and delivers the required intelligence. According to Ackerman and Wickens (2001:18), management of the intelligence process includes determining the scope of intelligence projects/assignments and contracting on deliverables with intelligence users. Planning and direction also include the prioritisation of intelligence requests, and the performance of tasks related to resource management for the intelligence process.

The five basic stages of this process show some similarities with the typical intelligence process discussed in this chapter. There is, however, a strong focus on analysing requirements and performing assessments of existing information and intelligence available before initiating the collection of new information. This is evident in the first two stages of the Alpha Cycle, which aim to ensure that requirements are clearly defined and that already-existing intelligence and information are utilised where relevant before initiating the collection stage. In cases where no relevant information/intelligence exists within the organisation, information/intelligence gaps are identified and specific collection efforts are initiated. This corresponds with Kent's ideas on collecting only new information to address information gaps.

The third step is focussed on obtaining new information to address information gaps that were identified during the assessment stage. In this process, the processing of raw information as referred to in the CIA process, forms part of the collection stage. This implies that, should there be a need to translate or convert data/information into a specific format, this is done as part of the collection effort.

During the analysis stage information is evaluated, analysed, collated, synthesised and interpreted within the context of addressing the specific intelligence requirement, and ultimately the business issue/problem that triggered the requirement.

In the dissemination stage intelligence products are compiled and reviewed before being delivered to intelligence users. Although not as prominent as is the case with the Delta Model, obtaining feedback and input from intelligence users is part of the dissemination stage.

As is the case with many intelligence processes, the Alpha Cycle, as depicted above, does not convey the complex nature and interaction between various

stages of the process. In each of the stages, the potential exist that BI staff members may actually need to review the outputs/results of the preceding stages and re-work previous stages before continuing with the next step in the process. A typical example of this could be where new information is collected (during Stage 3) that indicates a lack of understanding of the requirement. This could lead to a situation where the requirement is re-defined and Stage 2 (assessment) is also reviewed before continuing with the process. Underwood's process makes provision for dealing with this as part of the project redefinition stage.

Another example of the interaction between processes occurs when the collection of new information is still in progress when the analysis of information is initiated. This is typically the case when, especially as a result of time constraints, BI staff members need to start with the analysis of information before having received all the information that has been collected.

3.8 Conclusion

The processes discussed in the previous paragraphs provide some insight with regard to the typical intelligence processes that are used in the conduct of business intelligence. Although all the above-mentioned processes could be used to generate intelligence output for banking institutions, some of these processes are more complex in nature than is generally anticipated, and it is not uncommon to find that some of them are too cumbersome to apply in banking institutions, especially when dealing with resource constraints. It should also be noted that specific steps/stages of the above processes might not be suited to specific intelligence assignments performed in SA banking institutions.

The researcher is of the opinion that the Alpha cycle provides a sound framework for the development of BI process models for banking institutions as it considers specific issues/concerns raised around the typical intelligence process,

whilst remaining focussed on the fundamental thoughts of Kent which, 37 years after publication, remain relevant for the conduct of intelligence today.

In the following chapters of this dissertation, four stages typically found in intelligence processes including namely 'requirements definition', 'collection', 'analysis' and dissemination', will be used as a framework for the discussion of intelligence processes used in SA banking institutions.

CHAPTER 4: BI requirements definition

'Defining an organisation's actual intelligence needs, and doing so in a way that results in the production of intelligence that management feels compelled to act on, is one of our profession's most elusive goals' [3]

4.1 Introduction

Although the process of defining an organisation's BI requirements is typically the starting point for an intelligence process, and as such a critical success factor for the delivery of actionable intelligence, Herring (cited in Prescott and Miller, 2001: 241) points out that 'surprisingly, there has been very little professionally written on this topic'.

From the outset it should be noted that there is a difference between information needs and intelligence requirements. Intelligence requirements refer to specific requirements for intelligence (also refer to the definition of intelligence in Chapter 2, paragraph 2.7) and do not refer to a need for information. It is therefore important that BI staff members should distinguish between information needs and intelligence requirements, because their primary role in an organisation is to provide actionable intelligence and not information.

According to Herring (cited in Prescott and Miller, 2001:241), it is critical in any intelligence assignment 'to meet the business user's real intelligence needs and doing it in such a manner that would lead to someone acting on the intelligence'. This requires intelligence staff to follow a process that will define intelligence requirements at a level of detail that will enable them to plan and execute the stages of the intelligence process.

[3] Jan P. Herring (cited in Prescott and Miller, 2001: 240)

The aim of this chapter is to review existing literature on processes for defining BI requirements, refer to the BI requirements definition processes used by the SA banking institutions that participated in this research and describe a BI requirements definition process that could be applied within SA banking institutions.

Firstly this chapter deals with the identification of BI requirements and the originators of these requirements. This is followed by a brief discussion of various approaches that can be followed in dealing with BI requirements. Before reaching a conclusion, a step-by-step process for BI requirements definition is proposed and discussed.

Given the limited amount of academic research done on the definition of intelligence requirements, and since Herring is one of the most prominent writers on this topic, several references will be made to his research and publications in this chapter. To provide additional perspectives on the process suggested by Herring, results from research involving SA banking institutions and practical consulting experience gained by the author will also be discussed.

4.2 Identification of BI requirements - the origin

An analysis of the origin of BI requirements requires that a closer view is taken of the fundamental factors that cause requirements for intelligence to be identified. The identification or origination of BI requirements provides the input for the BI requirements definition process, and ultimately for the processes associated with addressing the BI requirements.

Figure 4.1 below depicts the linkage between the origin/identification of BI requirements and the processes of defining and addressing BI requirements.

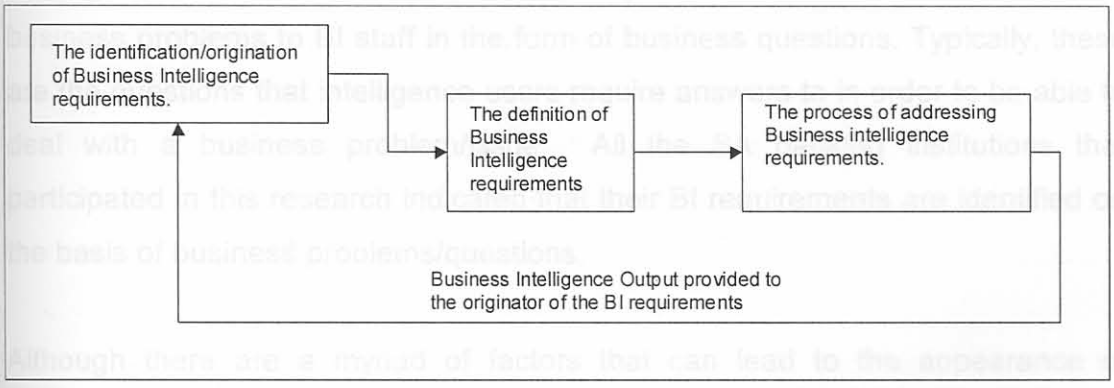


Figure 4.1 The linkage between BI requirements identification and definition

There are a number of ways in which BI requirements can be identified/originate.

4.2.1 Ways to identify BI requirements – Business problems

According to Kent (1966:157), 'the appearance of a problem' is what leads to the initiating of the intelligence requirements process. This problem, which Kent also refers to as the 'substantive problem', requires the attention of BI staff and intelligence users. For the purpose of this dissertation, the researcher will refer to this as the 'business problem/issue' that needs to be dealt with. Rustman (2002:17) sums up the importance of problems in intelligence as follows: 'intelligence is about problem solving'. It is also interesting to note that Rustman (2002:10) makes reference to the identification of business questions as part of this process, and in his view 'the process begins with a question'. Although this may seem somewhat contradictory, there is a direct link between the identification of business problems/issues and business questions. An unanswered business question may give rise to the identification of a business

problem and vice versa. A typical banking question such as, 'Why are we losing so many customers?' could lead to the identification of business problems/issues relating to customer service. Also, intelligence users often articulate their business problems to BI staff in the form of business questions. Typically, these are the questions that intelligence users require answers to in order to be able to deal with a business problem/issue. All the SA banking institutions that participated in this research indicated that their BI requirements are identified on the basis of business problems/questions.

Although there are a myriad of factors that can lead to the appearance of business problems, it is important to discuss the link between internal and external events and business problems/questions. Business problems/ questions could arise as a result of events external to a banking institution. Problems could originate from the market in which a banking institution operates and beyond, even globally. From a competitive perspective, a typical example of this would be where a competing institution increases market share through the acquisition of another bank. Another example would be where a competitor banking institution launches a new product or reorganises itself to target a specific market. From a risk management perspective, political or economic instability in a region where a banking institution has major exposure could see the emergence of business problems to deal with. New regulations or legislation could also create business issues that banking institutions have to deal with. In addition to external events, business problems also arise from factors within a banking institution. An example of this would be where a marketing campaign does not achieve the required results or where poor customer service leads to an increase in customer attrition.

4.2.2 Other methods for identifying BI requirements

In addition to the above, the researcher would like to expand on the thoughts of Kent and Rustman by discussing other methods by which BI requirements can be identified, without specific business problems/questions having been identified beforehand. It should be noted that these methods could also lead to the identification of business problems/questions, which in turn could lead to the identification of intelligence requirements.

Figure 4.2 below depicts various ways in which BI requirements can be identified/originated.

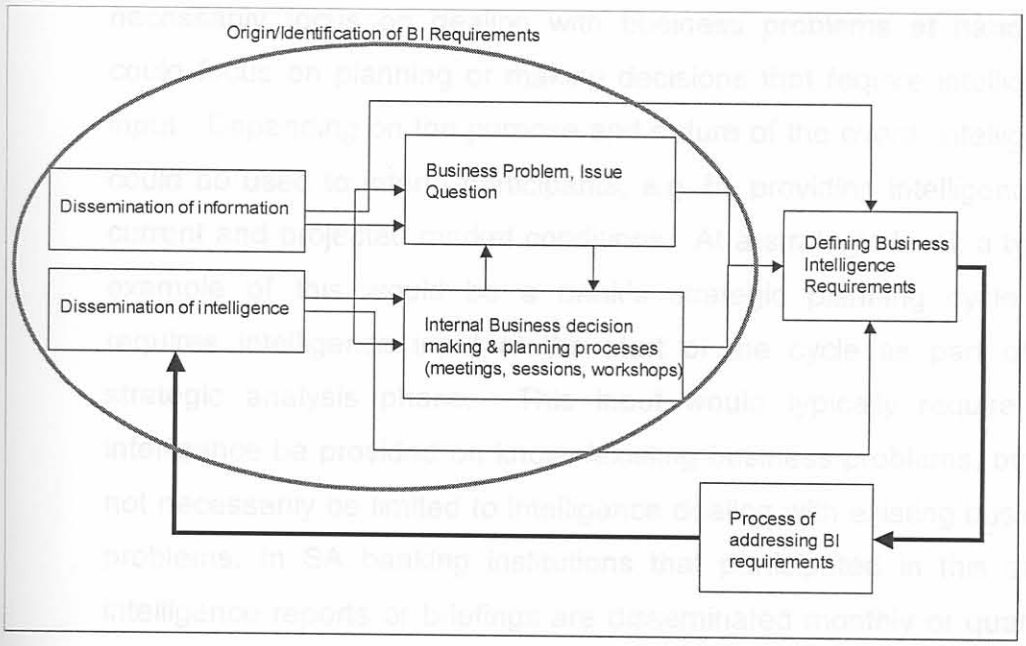


Figure 4.2 The origin of BI requirements

Based on input obtained from participating SA Banking institutions, there are, in addition to business problems/issues or questions, a number of other ways in which requirements originate in practice. In this regard reference is made to the

dissemination of information and intelligence, as well as internal planning and decision-making processes. Each of these will be discussed in more detail below:

- **Internal planning and decision-making processes**. In addition to business problems giving rise to a requirement for intelligence, a bank's international processes relating to planning, decision-making, and keeping staff informed could require intelligence input to enable these processes. In SA banking institutions it is not uncommon to find that intelligence requirements are directly linked to important meetings on the bank's management calendar. These meetings/events may not necessarily focus on dealing with business problems at hand, but could focus on planning or making decisions that require intelligence input. Depending on the purpose and nature of the event, intelligence could be used to inform participants, e.g. by providing intelligence on current and projected market conditions. At a strategic level, a typical example of this would be a bank's strategic planning cycle that requires intelligence input at the start of the cycle as part of the strategic analysis phase. This input would typically require that intelligence be provided on known/existing business problems, but will not necessarily be limited to intelligence dealing with existing business problems. In SA banking institutions that participated in this study, intelligence reports or briefings are disseminated monthly or quarterly to coincide with executive management meetings, board meetings and other subject specific forums.

- **Dissemination of intelligence**. In disseminating intelligence output, whether it be an input for organisation meetings/events or a response to a business issue/problem, the recipients of the intelligence could be

triggered to identify new business problems/issues or specific BI requirements. It is not uncommon to find that intelligence users, on receiving intelligence, identify new business issues and address questions to BI staff regarding issues that could become requirements for BI. It is also not uncommon to find that the dissemination of intelligence output could lead to specific meetings being held to discuss the intelligence received. In addition to this, the dissemination of intelligence could also lead to specific BI requirements being formulated without necessarily identifying a business issue to deal with. All the SA banking institutions that participated in this research indicated that the dissemination of BI output could lead to the identification of further BI requirements.

- **Dissemination of Information**. As in the case with the dissemination of BI output, the dissemination of information could also trigger the recipients thereof to identify a requirement for intelligence. A typical example of this in banking institutions is where information relating to the business environment is compiled into current awareness bulletins. These bulletins, which usually contain press clippings, are made available to banking staff who, on studying them, might develop a need for further information or for intelligence to be produced on a particular topic. As in the case of the dissemination of intelligence (as discussed in the previous paragraph), the dissemination of information could also lead to the identification of new business problems/issues, which in turn could trigger requirements for BI. All the SA banking institutions that participated in this research indicated that BI requirements are identified as a result of the dissemination of information.

4.3 *Originators of BI requirements*

In the section above, business problems/issues, internal planning/decision-making processes and the dissemination of information and/or intelligence were identified as the origin of BI requirements. Apart from Kent's perspectives on the originators of intelligence requirements, the researcher will also briefly discuss other originators of BI requirements and refer to the links between organisation levels and the originators of BI requirements.

4.3.1 Sherman Kent's perspectives

With regard to how business problems could be generated and who the originators of these problems could be, Kent (1966:159) identifies three distinct originators that are linked to 'the appearance of the substantive problem':

- **Staff employed to identify business problems**. Kent argues that the business problem may emerge as a result of problem formulation and problem anticipation research done by organisation staff members assigned to this task. The importance of having 'a trouble shooter' should not be underestimated. Kent (1966:160) explains the significant role of such a person as follows: 'A Pearl Harbour disaster is to be ascribed in no small measure to the absence of some unpleasant and insistent person, who, knowing of the growing animus of Japan, kept asking when is the attack coming, where is it coming, and how is it coming'. SA banking institutions that participated in this research did not indicate that they had staff specifically dedicated to fulfil this role. However, it could be assumed that banking staff, especially those dealing with strategic planning issues, would be tasked with identifying business problems.

- **Surveillance/environmental scanning**. In addition to the above, Kent (1966:157) also explained that the substantive problem 'can emerge when surveillance makes one aware of something unusual'. Although Kent refers to the surveillance used by governmental intelligence services, banking institutions tend to use BI staff to do environmental scanning and perform 'current awareness' activities in order to identify emerging trends, keep abreast of the latest developments (with regard to customers, products, competitors, delivery channels, etc), and to limit surprises by providing 'early warning'. All the SA banking institutions that participated in this research indicated that BI staff members were involved in environmental scanning and current awareness and 'early warning' activities, and would therefore be able to identify business problems and corresponding BI requirements.

- **Intelligence users identify business problems**. Probably the most common source of business problems and corresponding BI requirements are the intelligence users themselves. Being responsible to deal with business issues/problems, these are the people that would typically identify the substantive problem, identify a requirement for BI, and communicate this to BI staff. As was pointed out in the previous section, this could be as a result of internal or external events, participation in decision-making/planning processes or attendance of meetings/sessions, or access to relevant information/intelligence output. All the SA banking institutions involved in this research indicated that intelligence users play a critical role in identifying business problems and the corresponding BI requirements. It is also important to note that intelligence users employed at various levels within an organisation may originate BI requirements. Rustman (2002:10), in his discussion of the identification of BI requirements, makes specific reference to what the CEO wants to know.

This could create the impression that BI requirements are typically identified at executive management level within an organisation, and that a 'top-down' approach is usually followed. On closer analysis, it is not uncommon to find that BI staff would focus on the requirements identified at executive management level. In the case of one of the banking institutions involved in this research, the originators of BI requirements are mainly the bank's senior management, and the emphasis is placed on addressing the intelligence requirements of those managers that are in the Retail Banking division of the bank. Although this particular bank's BI unit also receives intelligence requirements from other divisions and levels of the institution, these requirements are dealt with in an ad hoc manner. One of banking institutions that participated in this research made specific arrangements to deal with intelligence requirements that originate outside of the executive management level within the various business units. This institution has adopted a process in which each business unit has a BI champion who receives all intelligence requirements that originate at various levels within his/her business unit. These BI champions participate in a regular BI forum during which BI issues and requirements are discussed.

4.3.2 Other originators of BI requirements

- **BI Staff members**. Internal BI staff can also be originators of intelligence requirements. It is not uncommon to find that BI staff use their own initiative and knowledge of the business environment to identify intelligence requirements. All the SA banking institutions that participated in this research indicated that BI staff needed to be proactive in identifying business problems and the corresponding BI requirements.

- **External originators**. It is important to note that Kent's emphasis is on the internal generation of business problems by staff members of the particular organisation. Although this also holds true for SA banking institutions, according to the findings of research conducted for this dissertation, research conducted by Ackerman and Wickens (2001:12) indicated that intelligence requirements could also originate from the **customers** of a banking institution. In this regard, depending on the bank-customer relationship, customers could communicate a business problem to a banking institution and identify a requirement for intelligence. An example of this would be where a bank's customers may require intelligence for business planning purposes, or where it is necessary to deal with external expansion.

4.4 *Approaches for dealing with BI requirements*

Kent (1966:151) refers to two different approaches used for dealing with BI requirements. One is where intelligence users define a need for intelligence and request intelligence staff to provide them with intelligence output. The other is where intelligence staff members define intelligence requirements based on their experience and environmental scanning activities. Herring (cited in Prescott and Miller, 2001:251) developed this further and refers to three basic choices that BI staff members have in dealing with BI requirements:

- To provide the intelligence output which BI staff members anticipate would be needed by intelligence users
- To wait for intelligence users (management staff) to ask for intelligence
- To take the initiative and ask intelligence users what their intelligence needs are

For the purposes of this dissertation the researcher would like to refer to five different approaches that could be used in dealing with BI requirements. These include the reactive approach, the proactive approach, the trigger approach, predefined BI schedules, and the combination approach.

4.4.1 The reactive approach

When intelligence users identify intelligence requirements and request/task BI staff to address these requirements, BI staff members have to react/respond to the intelligence requirements of those intelligence users. Herring (cited in Prescott and Miller,2001:249) refers to this as the 'responsive mode'. Probably one of the main disadvantages of this approach relates to the dependence of BI staff on the ability of intelligence users to identify their BI requirements with accuracy. Another disadvantage of this approach is that BI staff members have no influence or knowledge of the process followed by intelligence users to identify intelligence requirements. This could lead to a situation where BI staff may be surprised by a large number of requests coming from intelligence users, without having been warned in advance of these requirements. In addition, BI staff would also need to spend time with intelligence users in order to understand what gave rise to the identification of the BI requirement. Typically, BI staff should be active in providing advance notice to intelligence users on new business trends emerging and new business problems/issues that are to be expected. If BI staff members adopt the reactive approach, they would typically not be proactive in identifying intelligence requirements, and they may fail to provide advance intelligence of events that could impact on the organisation. Although there are several disadvantages to adopting a reactive approach in dealing with BI requirements, one of the main advantages is that the BI staff focus their efforts on the requirements that originate from intelligence users, therefore their BI assignments should be closely aligned with the BI requirements

of intelligence users. Although all the SA banking institutions that participated in this research, adopt the reactive approach, they do not over emphasise it.

4.4.2 The proactive approach

The proactive approach for determining BI requirements differs from the reactive approach in that BI staff act on their own initiative and identify BI requirements without waiting for or seeking input from intelligence users. Besides BI requirements not being identified by originators other than the BI staff, the main difference between the proactive and the reactive processes is that the BI staff members do not require access to/contact with intelligence users in order to identify a business problem and an intelligence requirement.

Without having received an identified requirement for intelligence, BI staff members need to be able to identify significant issues/trends that would add value to intelligence users. In order to be able to do this with success, BI staff members need to have a sound understanding of those topics or key business questions that would be of interest to intelligence users within a given business environment. In essence BI staff need to have a sound understanding the business strategy, objectives, decisions to be made, issues to deal with, etc. BI staff members need to understand the business context and should be able to put themselves in 'the shoes' of intelligence users before they will be able to identify those topics that should be of interest to intelligence users. Gilad and Gilad (1988:6) provide a good example in this regard: 'If a organisation does business in a mature, stagnant market, it may not need to cover potential competition because it is highly unlikely that new entrants will be interested in their market. There may even be less of a pressing need to monitor existing competitors closely. Its main objective, however may be to diversify away from the existing market, which may mean scanning the environment for profitable

industries and acquisition candidates.' If BI staff understand this business context, they could add value by proactively providing intelligence on new markets and acquisition candidates without having to wait for intelligence users to request intelligence on these topics. It should also be noted that this approach can add value only if BI staff have the resources and freedom to be proactive.

Herring (cited in Prescott and Miller,2001:250) recognises the importance of the proactive approach, indicating that BI staff must be able to 'operate on their own initiative, identifying and addressing new and emerging intelligence topics that no manager has yet recognised'. There is, however, a number of disadvantages to this approach, one of which is the danger of BI staff placing too much focus on intelligence assignments that they initiate while failing to address the requirements as identified by intelligence users. Furthermore, BI staff may keep themselves occupied with BI requirements that would add little value to the decision-making/planning processes of an organisation and, as a result, the value of the whole BI effort may be questioned.

The SA banking institutions involved in this research place emphasis on the need to adopt a more proactive approach when dealing with BI requirements. Interviews with BI staff members employed by these banking institutions clearly indicated that intelligence users expect BI staff to be proactive and that the proactive identification of business issues and BI needs represents added value to intelligence users. It should also be noted that BI staff members of these banking institutions do not limit themselves to the proactive approach.

4.4.3 The trigger approach

The trigger approach differs from the proactive approach as described above in that BI staff take the initiative and trigger a reaction from the originators of

intelligence, and specifically the intelligence users. The reaction from intelligence users could be the identification of new BI requirements. Although Herring (cited in Prescott and Miller,2001:250) includes this approach as part of a 'proactive mode', it should be noted that in following this approach, BI staff do not identify the BI requirements; this is done by the intelligence users once they realise that they have a need for intelligence, or articulate their BI requirements. This approach allows BI staff to trigger the BI requirements definition process in a number of ways, including the following:

- **Interviews/Workshops**. Rather than waiting to receive a BI requirement from decision makers, BI staff members can take the initiative and interview appropriate intelligence users in order to help them define their BI requirements. The focus of these interviews would typically be on obtaining those topics and key business questions the intelligence users have to deal with. Once these BI requirements have been identified, intelligence staff can set about defining them.

- **Selective dissemination of information**. BI requirements are often identified as a result of information that was disseminated (pushed) to particular intelligence users. A typical example of this is where current awareness bulletins, containing filtered information obtained from publications and other sources, are provided to specific staff members within a banking institution in accordance with the specific interest profiles of the users. The selective dissemination of this information could act as a trigger that leads to business questions being asked and intelligence requirements being identified. Although this approach could be described as reactive, BI staff members also play a subtle but active role to prompt intelligence users to identify intelligence requirements. The BI staff of one of the banking institutions that provided input for this research indicated

that a significant number of BI requirements were identified as a result of the selective dissemination of information.

4.4.4 The predefined BI schedule approach

In order to deal with BI requirements that are identified at regular intervals, or would require ongoing intelligence output, BI staff members commonly adopt an approach of addressing BI requirements based on a predefined BI schedule. Intelligence users frequently require intelligence on key business issues/problems and related topics on an ongoing basis. Amongst intelligence professionals these requirements are also referred to as essential elements of intelligence. Having once identified these specific requirements, BI staff would not follow a process of identifying and defining these BI requirements at regular intervals before addressing them, as this would be inefficient.

In all the SA banking institutions that participated in this research, BI reports/briefings are produced and disseminated to intelligence users based on a schedule that is predefined and agreed on with intelligence users. Although there are some differences regarding the types of intelligence output provided and the intervals at which these products are provided, there is a striking resemblance between the 'on-going' BI requirements of the SA banking institutions. An example of this is where BI staff provide intelligence monthly and quarterly reports on competitor activities.

One of the main advantages of adopting this approach is that intelligence users know that BI staff members are continuously addressing specific BI requirements, and intelligence users know when to expect BI output. For BI staff members, and especially the management of a BI Unit, this schedule provides

the basis for the development of BI project plans and the execution of BI assignments.

4.4.5 Combination of approaches

Based on the input obtained from SA banking institutions that participated in this research, it is clear that BI staff members do not favour or adopt only one approach. Some of the banking institutions seem to be more inclined to emphasise the reactive approach, while others tend to emphasise the proactive approach. All the banking institutions involved in the research adopt the 'trigger approach' in order to encourage intelligence users to identify new BI requirements. In addition to this, they all make use of predefined BI schedules to provide BI output in predetermined format on specified dates.

4.5 A Proposed step-by-step BI requirements definition process

Irrespective of the approaches followed within a banking institution to deal with BI requirements, a formal BI requirements definition process should be followed. Although Herring (cited in Prescott and Miller, 2001:240) refers to a formal 'management-needs identification process', which in his view is a proven way to accomplish this task, it is suggested that a process be followed that moves beyond the identification of requirements to the **definition** of these requirements. In this regard

The purpose of the BI requirements definition process is to accurately define the intelligence user's requirement. This should be done in enough detail in order to ensure that the intelligence output that is ultimately provided will address the defined requirement and assist intelligence users to use the intelligence output for its intended purpose. Based on the research of Herring, Gilad and Gilad, the input obtained during research for this dissertation and practical BI consulting

experience gained in banking institutions, the researcher proposes that the BI requirements definition process depicted below, which consists of five steps, should be considered for BI requirements definition. Each step is discussed in more detail in the paragraphs that follow.

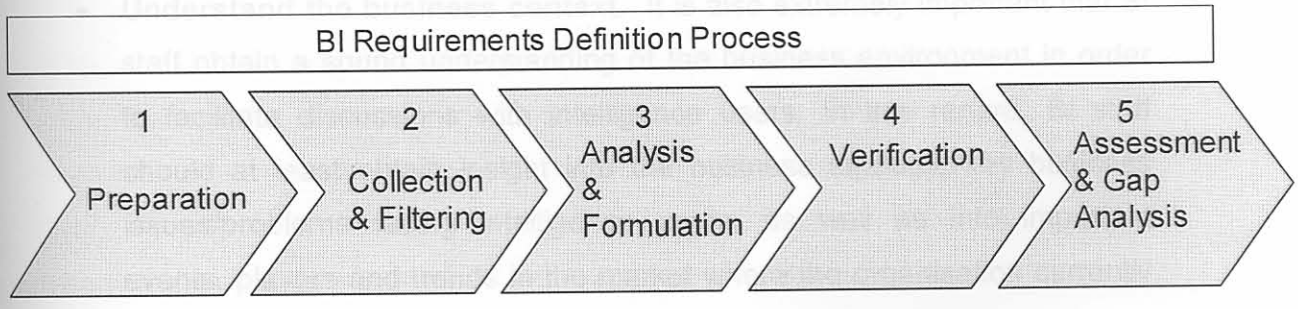


Figure 4.3 A five-step BI requirements definition process

Step 1: Preparation. Although intelligence users may be able to identify business issues and corresponding BI requirements as part of their day-to-day activities, the process of defining BI requirements would require specific input from intelligence users. This is of particular importance when an organisation initiates a BI program. Before engaging intelligence users, it is important that both BI staff members and intelligence users should be prepared and should know what to expect from the process. The preparation process consists of the following:

- **Educating intelligence users**. Herring (cited in Prescott and Miller, 2001:243) refers to this as a process of educating an organisation's senior management in order for them to understand their role in the BI process, and how to properly articulate their intelligence needs.

- **Training BI staff**. To the above, the researcher would like to add that it is just as important to educate BI staff in how to interact with senior management during BI requirements definition. BI staff should also be

trained to use the methods applied during BI requirements interviews, to facilitate BI requirements workshops, and to be able to conduct BI audits and surveys.

- **Understand the business context**. It is also extremely important that BI staff obtain a sound understanding of the business environment in order to facilitate discussions with intelligence users. In this regard, BI staff should at least obtain insight into the business strategy, key business issues/problems facing intelligence users, as well as into important events, players and trends in the market where the organisation currently operates.

- **Decide on approach and methods**. As part of the preparation process, BI staff members need to decide on the most appropriate approach to follow in obtaining requirements. It is also important to determine which method would be best suited to the intelligence users that are to participate in the BI requirements definition process. When dealing with senior management, short, face-to-face interviews may yield more accurately defined BI requirements than a workshop with all the senior managers of an organisation.

- **Preparation for interaction.** Irrespective of the approach and method decided upon, BI staff members need to prepare for requirements definition interviews/workshops before engaging intelligence users. In the case of interviews, BI staff members need to prepare the interview material, which includes formulating questions and making practical arrangements. To assist BI staff in preparing for these interviews, BI interview guidelines published in literature could be considered. Herring (cited in Prescott and Miller,2001:252) provides an example of a 'KIT

protocol', which lists several questions to ask intelligence users during a BI requirements definition interview. Herring (cited in Prescott and Miller, 2001:251) also provides an example of the typical framework to be used when conducting BI surveys.

Step 2: Collection and filtering. As explained in paragraph 4.2, BI requirements can be identified by various originators. There are also several approaches that can be adopted to ensure that BI requirements are identified by intelligence users and communicated to BI staff members. This collecting and filtering process starts with obtaining the already identified BI requirements from the originators. Once these BI requirements have been identified and communicated to BI staff, these requirements need to be documented and collated. In one of the banking institutions that participated in the research, the collected BI requirements are documented in formal intelligence briefs/proposals. These documents not only provide records of BI requirements, but are also used in further stages of the BI requirements definition process. It is also important that all the collected BI requirements be collated. This can assist in determining priorities later in the process. It is not uncommon to find that key decision makers within an organisation may have BI requirements that relate to the same topic. Herring (cited in Prescott and Miller, 2001:244) proposes that, as a result of this, BI requirements can be categorised into three categories:

- BI requirements to support business decisions. In this category Herring includes the intelligence required for the development of strategic plans and strategies. In some cases these requirements could be specific and articulated in the form of a specific question, decision statement and/or by identifying a key topic.
- BI requirements to prevent surprise (Early warning)

- BI requirements about key players in the marketplace (competitors, customers, suppliers, regulators, etc.)

The filtering of BI requirements is also an important step during this stage of the process. Herring (cited in Prescott and Miller, 2001:242) mentions the need to identify 'management needs that actually require intelligence and not information'. A typical banking example would be where senior management has identified the importance of customer attrition/churn as a topic that requires ongoing intelligence output. If the requirement is in fact for monthly statistics on customer attrition, BI staff should be able to identify this as an information requirement and not deal with it further. Ultimately BI should be focussing their efforts on dealing with requirements for intelligence, and the filtering step should prevent information requirements from becoming BI assignments.

One of the banking institutions that participated in this research has a specific process to ensure that all BI requirements are filtered. When BI requirements originate from business units, the BI champions allocated to those business units are responsible for reviewing and filtering the BI requirements. If requirements are collected by staff members assigned to the corporate BI unit, these requirements are filtered by staff assigned to the unit.

It should also be noted that the filtering of BI requirements could require some analysis on the part of BI staff before it can be decided if the requirement can be addressed by intelligence, or if the provision of information would suffice.

Step 3: Analysis and formulation. Although Herring does not make specific reference to the analysis of BI requirements, practical experience has led the researcher to believe this to be an important part of the process. Kent (1966: 162) refers to the analysis of the 'substantive problem' as the second stage of

the intelligence process. He also argues, that the aim of this analysis 'is not merely to discover and discard those elements which are irrelevant or unimportant, but more importantly to shape the problem in such a fashion that the solution will be directly applicable to the task of the consumers' Rustman (2002:17) also emphasises the importance of 'evaluating the problem' before proceeding with other stages of the intelligence process. After having filtered BI requirements in order to identify the 'real' intelligence requirements, BI staff should analyse each of these requirements in terms of:

- The nature and scope of the requirement.
- The business background/context that led to the identification of the requirement
- Specific guidelines that BI staff need to follow in addressing the requirement

One method that could be employed during the analysis stage is to organise question and answer sessions with intelligence users, during which BI staff should ask a number of questions. These, often referred to as the '5 x W' questions by intelligence professionals, include the following questions:

- Who?
- What?
- When?
- Where?
- Why?

These questions assist BI staff in determining the exact nature and scope of a BI requirement. When dealing with a BI requirement related to customer attrition, BI staff would need to establish if intelligence users are interested in all customers, or in specific groups only (Who?), if a specific region or geographical

area is of particular importance (Where?), and if the requirement relates to a specific time period (When?). Determining the exact reasons for customer attrition would address the 'Why?' question. Once the topic is analysed using the 5xW questions, specific BI questions, also referred to as key intelligence questions (KIQs), could be formulated with regard to each of the 5 x W elements.

Another method for assisting with the analysis of BI requirements involves the identification of the key topics that need to be addressed in order to provide the required intelligence output. Once identified, these topics, also referred to as key intelligence topics (KITs), should be analysed in more detail in order to determine what elements the topic consists of, and to identify other related topics. This could require BI staff to collect information related to the topic. In the customer attrition example discussed above, BI staff may need to gather information around causes for attrition, events before attrition, and customer signals preceding attrition in order to identify all the relevant elements associated with the KIT. It is also important to determine what elements of the KIT are not within the scope of the BI requirement. In the customer attrition example, the intelligence user may only want intelligence relating to attrition behaviour of a specific group of customers over the past year within a specific geographic area. Therefore BI staff should not focus on providing intelligence on attrition behaviour of all clients, or on other elements related to attrition.

In addition to determining the nature and scope of the requirements using KITs and KIQs, it is important to analyse the background that led to intelligence users identifying a specific BI requirement, and the purpose for which the intelligence will be used. An understanding of the root cause of the specific business problem/issue provides BI staff with the necessary context when dealing with the requirement. This analysis should also aim to establish what impact the intelligence output could have on the business, and what the business priority of the BI requirement is. Referring to the customer attrition example again, if BI staff

know that the customer attrition requirement stems from a major problem facing the banking institution in that all the best clients of the banking institution are in the process of transferring their business to a competitor, BI staff would understand the significance of the assignment and focus their intelligence effort around understanding competitor activities and ways in which attrition could be prevented, and would undertake this task as a matter of urgency.

An important part of the analysis step is to determine if intelligence users have specific guidelines for BI staff when dealing with a BI requirement. Examples of specific guidelines could include:

- **Delivery dates**. Intelligence users may need intelligence before a specific date in order to make a decision. Beyond that date the intelligence output may be of little value.

- **Format**. Intelligence users may require that intelligence output is produced in a particular format e.g. that reports are produced or that verbal presentations are given to specific intelligence users.

- **Methods to be used/not used**. Intelligence users may also require that BI staff make use of specific methods, or refrain from using methods during the collection and analysis stages of an intelligence process. Typically, in the case of competitor intelligence requirements, intelligence users would not want BI staff to use information collection methods, which could attract attention to the fact that competitor intelligence assignment is underway (i.e. direct questioning of competitors' staff about new products/markets).

- **Priority of the requirement**. At this stage it is also important that the

priority of the BI requirement be established, especially when several BI requirement are dealt with.

- **Security guidelines**. Depending on the nature of the BI requirement, intelligence users may prefer that only specific BI staff members deal with the requirement, and that the intelligence output be disseminated only to designated intelligence users.

On completion of the analysis, BI staff should be able to formulate and document the BI requirement in sufficient detail, ensuring the inclusion of all relevant topics/elements and KIQs, as well as the guidelines provided by intelligence users. This document, which articulates the BI staff's understanding of the BI requirement, would include some background to the requirement, the scope of the requirement and intelligence user's guidelines.

Step 4: Verification. Formulated BI requirements should be verified with the originator/s of such requirements in order to ensure that BI staff and intelligence users agree on the nature and scope of the BI requirement, as well as specific guidelines to be followed. In this regard, Herring (cited in Prescott and Miller, 2001:245) refers to the importance of interactive dialogue with the user in order to better define requirements. Once this verification process has been completed, both BI staff and intelligence users should agree on what it is that they (intelligence users) need to know about a particular KIT, and what the key intelligence questions are that need to be answered.

Step 5: Assessing capability to address BI requirements

On completion of the verification process, BI staff must assess their capability to address the defined and verified BI requirements. This does not refer only to the

human and financial resources required to perform the actual BI assignment, but also to the following:

- **Availability of information, knowledge and intelligence**. Probably the most important step in the assessment stage, is to establish what **relevant** and **accurate** information, knowledge and intelligence is already available within the organisation. In order to determine relevance, a framework consisting of the KITs and KIQ could be used. Should relevant information, knowledge and intelligence products be available in the organisation, the next step would be to determine/verify the accuracy thereof. This is an important step, because it does not make any sense to use existing information for BI purposes if it is not accurate. Once BI staff members have determined what is already known about specific KITs and KIQs within the organisation, they can proceed to determine the intelligence gap.

- **Determining the intelligence gap**. By comparing the details of the defined and verified requirement with relevant information, knowledge and intelligence already existing within the organisation, BI staff may find that there is a gap between the intelligence required and the intelligence available. If such a gap does not exists, it would mean that relevant intelligence products are already available to address the BI requirement, in which case BI staff members need to distribute such intelligence products to the intelligence user. If an intelligence gap exists, addressing this gap becomes of critical importance for planning the subsequent steps in the overall intelligence process.

- **Determining complexity and constraints**. Although not mandatory, it is suggested that the complexity and constraints related to addressing the BI

requirement, and specifically in addressing the intelligence gap, should be determined at this stage of the process. By determining the complexity of the BI requirement, the effort and resources required to address the requirement could be estimated. Typically, the more complex the BI requirement, the greater the effort that will be required, and the more the resources that will be required to address it. In additional to this, BI staff must also be able to identify the constraints that they may face during the process of addressing BI requirements and must plan ways in which to deal with them. A model developed for customer intelligence purposes (Ackerman and Wickens, 2001:71) could be used to assist in mapping BI requirements in terms of complexity and constraints. By mapping all the organisation's BI requirements an overview can be obtained of the complexity of BI requirements that BI staff have to deal with, as well as the level of constraints under which they need to address these requirements. With his in mind, BI staff can make specific plans/provisions for dealing with those requirements that are highly complex and have a high level of resource constraints.

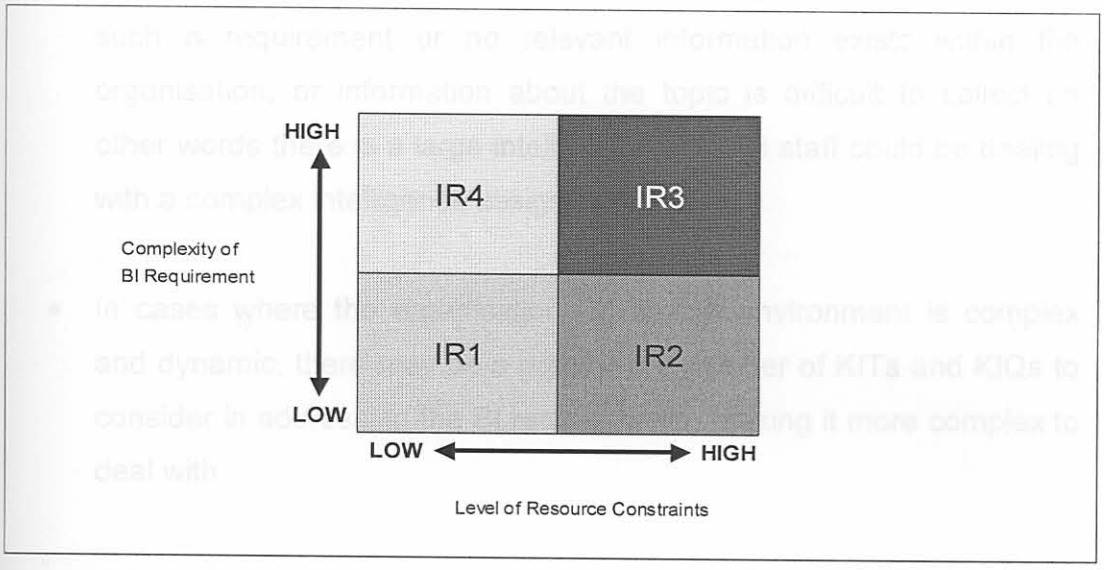


Figure 4.4: Complexity and constraints model for BI requirements (Ackerman and Wickens, 2001:71)

In this model, intelligence requirements (IR) that are of high complexity but have low resource constraints are identified as IR4. If the majority of BI requirements are highly complex in nature, the BI programme should make provision for obtaining specialist resources/skills to deal with them. By adding the priorities of BI requirements to the mapping already done on the grid, BI staff can identify high-priority BI requirements that are also characterised by high complexity and high resource constraints. Typically, IR3 requirements with severe time or information constraints should preferably be allocated to the most experienced and skilled BI staff members.

The above model contains a number of factors that should be considered when determining the complexity of BI requirements. The following are examples of such factors:

- In cases where BI staff experience difficulty in analysing and determining KITs and KIQs, either because they have never dealt with such a requirement or no relevant information exists within the organisation, or information about the topic is difficult to collect (in other words there is a large intelligence gap), BI staff could be dealing with a complex intelligence assignment.
- In cases where the organisation's business environment is complex and dynamic, there may be a greater the number of KITs and KIQs to consider in addressing the BI requirements, making it more complex to deal with.

- BI requirements dealing with predicting the future are often more complex than requirements that are limited to an analysis of past events.

In addition to determining the complexity of BI requirements, BI staff usually have to deal with various resource constraints, including the following:

- Time constraints are probably one of the most common constraints under which BI staff have to work. Therefore, BI staff should be trained to be able to perform the basic steps of intelligence processes under severe time constraints.

- As already mentioned, relevant information required to address the BI requirement might not be available within the organisation. In some cases relevant information, external to the organisation, might also be difficult to obtain. A typical example of this would be information related to the future strategic intentions or mergers of competitors (which would typically not be made public or readily available). Another information constraint relates to the difficulties often experienced by BI staff when having to establish what information is available within an organisation, and where to find it. It is not uncommon to find that BI staff members identify intelligence gaps, whilst relevant information/knowledge is already available within an organisation.

- Having access to skilled and experienced BI staff to deal with BI requirements is another potential constraint, especially in cases where a banking institution has a limited number of BI staff members who

have to deal with several BI requirements. The BI staff required to address BI requirements must have a sound understanding of both the conduct of intelligence and the business environment. In addition to this they need to be able to engage with intelligence users at various levels and should possess facilitation, interview, analytical and presentation skills, to name but few. It is therefore not uncommon to find SA banking institutions employing or contracting experienced intelligence specialists who served in governmental/military intelligence services to provide additional intelligence experience.

- In addition to the constraints mentioned above, the BI programme could be faced with a number of other constraints. Financial constraints and IT support constraints are but some of the common constraints faced in addressing BI requirements. Financial constraints become apparent, especially when external information needs to be bought, new IT tools are required, or external specialists are required.

4.6 Conclusion

The critical importance of properly defining BI requirements and having a process to execute requirements definitions is confirmed in the work of two very prominent scholars, writers and respected intelligence professionals, Sherman Kent and Jan Herring. In searching for a specific process or best practice to define BI requirements, as part of this dissertation, not much relevant information was found to be available. Rather, there seems to be focus on ways and means to **identify** BI requirements. Methods to assist BI staff with the identification of requirements are well documented, as are various approaches that could be followed in dealing with BI requirements.

Therefore, from a process perspective, there seems to be a gap in the literature once a BI requirement has been identified. Herring's work relating to KITs and KIQs provides some valuable guidance, but does not provide BI staff with a step-by-step process to define BI requirements before starting to address them.

During the analysis of the input obtained from the SA banking institutions that participated in this research, it became clear that BI staff members have processes to identify BI requirements, and that there are clear guidelines on the approach that should be adopted to deal with BI requirements. In two of the banking institutions there seemed to be a strong emphasis on following a proactive approach in dealing with BI requirements. However, once BI requirements have been identified, the processes followed by some of the participating SA banking institutions seem to focus on determining the priorities related to these requirements and establishing the resource requirements for dealing with these requirements. Only one of the SA banking institutions involved in the research indicated that there was a formal step-by-step process to analyse, formulate and obtain verification/approval for BI requirements.

Herring (cited in Prescott and Miller,2001:240) refers to the **definition** of intelligence requirements, as 'one of our profession's most elusive goals'. In trying to achieve this elusive goal, BI staff members may need to review the emphasis that is placed on the identification of BI requirements and shift their focus to accurately **defining** BI requirements in consultation with intelligence users. The five-stage process proposed in this dissertation could provide some input to BI staff in need of a detailed process for achieving this elusive goal.

CHAPTER 5: BI sources and collection

'Just as the military draws upon a variety of intelligence sources, ranging from human intelligence through signals intelligence to radar intelligence, so will businesses need to develop the ability to 'broadcatch'. The task of the business intelligence centre will be to develop comparable all-source intelligence capability by a variety of methods' [4]

5.1 Introduction

One output of the BI requirements definition process is the identification of business intelligence gaps. The next stage of the business intelligence process, the collection stage, is aimed at addressing BI gaps.

According to Bernhardt (1993:171), collection 'involves the gathering of the raw information from which finished intelligence will be produced'. The purpose of the collection step of the intelligence process is not to collect as much as possible information regarding the KITs and KIQs as defined during the requirements definition process. Rather, the purpose is to selectively collect data, information and knowledge that will assist BI staff to address the identified BI gaps (as discussed in the previous chapter). Bernhardt (1993:173) emphasises the fact that the collection of information should be done 'as cost effectively, as efficiently and as quickly as possible'. In order to achieve this, the collection of information cannot be executed in an ad hoc manner, but needs to be properly planned and executed, using a collection process.

The aim of this chapter is to:

- Review existing literature on BI sources and collection processes

[4] B. Cronin (cited in Sigurdson and Tagerud, 2001:154)

- Discuss the BI collection processes used by SA banking institutions and to propose a BI collection process that could be applied by SA banking institutions.

Owing to the importance of the collection stage in the BI process, the collection of information is extensively discussed in literature on BI. However, in the literature the emphasis is often placed on the sources that could/should be utilised during the collection process. Typically, not much emphasis is placed on the actual steps to be followed during the collection process. To provide a practical step-by-step process for the collection of data/information/knowledge for BI assignments, this chapter considers the results of research done in SA banking institutions, as well as some BI collection practices used by international financial institutions.

5.2 *BI sources*

There is a myriad of BI sources that could be utilised during the collection stage of the BI process. In this regard it is important to gain an understanding of the various categories of BI sources in order to identify those sources that would be most appropriate to utilise when collecting information during a BI assignment.

5.2.1 Classification of BI sources

BI sources can be classified in a number of ways. Bernhardt (1993:171) distinguishes between two categories of data and information sources, namely primary sources and secondary sources. He notes that the primary sources are usually humans, whilst the secondary sources are 'open' sources. Kahaner (1998:53) also classifies information sources into primary and secondary sources. Gilad and Gilad (1988:58) distinguished between two types of information sources, namely field sources and published sources. Steele

(2000:128) refers to seven 'primary intelligence source types', which include imagery intelligence, human intelligence, signals intelligence, measurements and signatures intelligence, open-source intelligence, technical intelligence and counter-intelligence. Although Steele refers to these sources as 'intelligence sources', they are in fact sources that provide **data/information,** which is used as input for the generation of intelligence output.

5.2.2 BI source classification model

According to the definition of BI (as discussed in paragraph 2.7), BI sources include data sources, information sources and knowledge sources. Various classification methods exist to distinguish between BI sources. The following framework, based on the research conducted for this dissertation will be used to classify the various types of BI sources.

Primary Sources				Secondary Sources			
Internal		External		Internal		External	
Public	Non-Public	Public	Non-Public	Public	Non-Public	Public	Non-Public
Directed	Non- Directed	Directed	Non- Directed	Directed	Non- Directed	Directed	Non- Directed
Electronic	Non-Electronic	Electronic	Non-Electronic	Electronic	Non-Electronic	Electronic	Non-Electronic

Table 5.1: A framework for the classification of various types of BI sources

Each of these types of BI sources will be discussed in more detail below taking into consideration the nature and value of each of these types of BI sources.

5.2.3 Primary and secondary sources

5.2.3.1 Primary sources

(a) **Nature of primary sources**. Primary information sources refer to those sources that are the originators of the information. An example of this would be where a customer of a banking institution provides details about his/her financial needs to the banking institution. This information, in its original, unchanged format, is primary information. Kahaner (1998:53) refers to this as 'unadulterated facts directly from the source'. Continuing with the above example, when a staff member of this banking institution uses this primary information to compile a report on the customer's needs in which an opinion is expressed or other information elements are combined with the original information input, the staff member becomes a secondary source. Staff members observing the behaviour of customers in a banking hall are primary sources of information. Should there also be video footage of the banking taking place in the hall, the video material could also be classified as a primary source of information. Some publications may also be regarded as primary sources. Kahaner (1998:54) argues that speeches of senior management, annual reports and other company publications may be regarded as primary sources.

(b) **The value of primary BI sources**. According to Bernhardt (1993:173), 'it is primary resources that yield the most intelligence value'. Given the fact that the information is obtained from the origin of the information, primary source information, it is usually assumed to be more accurate than secondary source information. Kahaner (1998:54) agrees with this when he says, 'unless the source is deliberately lying, primary sources should be considered absolutely accurate'. Although it is often assumed that primary sources are more valuable for intelligence assignments than secondary sources, it should be noted that the

use of primary sources should be approached with caution as primary sources can provide information selectively. In the example of the banking customer providing the banking institution with details about his/her financial needs, the customer may forget or omit to tell the banking institution that he already had similar discussions with a competitor bank. This could lead to the institution's staff not accurately identifying that the customer is 'shopping around', or that they may lose this customer if they do not offer the same service and/or a better price than the competitor does. This does not diminish the importance of primary information sources for the BI projects of banking institutions. In 2000, research conducted by Ackerman and Wickens (2001:87) involving 33 financial services institutions found that 58 per cent of the institutions surveyed saw their customers as very important sources of information for intelligence assignments.

5.2.3.2 Secondary BI sources

(a) **The nature of secondary BI sources**. Kahaner (1998:54) defines secondary information sources as those sources that 'offer altered information'. Probably the best examples of secondary information sources are publications such as newspapers, magazines and analyst's reports, to name but a few. In the case of a publication, the writer of the publication could use material obtained during an interview (primary information) to compile an article that is edited prior to publication (secondary information). Edited television and radio broadcasts are also examples of secondary information sources.

(b) **The value of secondary BI sources**. In contrast to Bernhardt (see previous page), Kahaner (1998:55) is quick to point out that secondary sources are no less important or less accurate than primary resources. Kahaner (1998:55) maintains out that secondary information sources can

in some cases be more valuable than primary sources, especially where insightful opinions from the writer are shared in the publication. A typical example of this in a banking institution is where a report compiled by a market analyst (secondary information), providing expert opinions on the behaviour of customers, could prove more valuable to address a BI requirement than the original questionnaires (primary information) completed by customers during the market research.

5.2.3.3 A balance between primary and secondary BI sources

Since both primary and secondary information can immense value for banking institutions, there should be a balance between the development and utilisation of primary and secondary BI sources. An over-reliance on one type of BI source should be avoided. By comparing and integrating the information from both primary and secondary sources, BI analysts may in fact obtain a more comprehensive and balanced view of how best to deal with the BI gap.

5.2.4 Internal and external BI sources

5.2.4.1 Internal BI sources

(a) **The nature and value of internal BI sources**. Internal BI sources (primary and secondary) can play an important part in addressing intelligence gaps. It is not uncommon to find that the information/knowledge to address intelligence gaps is internally available, but that BI collectors do not know where to find it. There are many advantages to using internal BI sources. From a cost and/or risk perspective, it may be prudent to utilise internal BI sources before attempting to collect from external information sources. Especially when dealing with human sources, it is usually easier to obtain access to the internal sources than it is to make contact with and obtain access to external sources.

Unfortunately the opposite could hold true for some electronic sources, where it is not uncommon to find intelligence users and collectors gaining access to external databases, mainly because of the ease of access and navigation of such sources compared to internal databases. It should be noted that BI staff should not become too dependent on internal BI sources for collection purposes as these sources may provide information/knowledge that is biased towards organisational perspectives/policies.

(b) **Typical internal BI sources.** Several BI sources are utilised by banking institutions during the collection process. They include the following:

- **Employees**. Steele (2000:202) notes that 'the most important information resource is the employee'. He believes that every employee should form part of a bigger intelligence system and states that 'every employee must be a collector, producer and consumer of information and intelligence'. The research conducted by Ackerman and Wickens (2001:89) confirms the value of employees as collection sources for large international financial services institutions, especially those employees that have contact with banking customers (customer facing staff). Customer-care staff, relationship managers and sales staff are generally considered to be very important sources for BI purposes. One of the main advantages of using these employees in the collecting process is that they can collect the 'soft information', which is often difficult to collect and capture in the transactional processing systems of banking institutions. Examples of this include collecting information on customer attitudes, preferences, and information often volunteered by customers about their household, hobbies or future plans etc. In the case of SA banking institutions, 'relationship managers or personal bankers' are often utilised as sources for BI purposes, as they are in a position to collect 'soft' information during

customer contact. Typically sales staff members have knowledge of competitor products, marketing initiatives and the sales force, as they often have to compete against competing institutions when trying to conclude a sale.

- **Internal customers**. In the case of SA banking institutions it is not uncommon to find that employees are required to have accounts with their employer, often with preferential pricing structures. These employees are therefore also customers of the banking institution and make use of the products, services and channels of the institution. As such employees can provide primary information on their experiences of the institution's products and services. Employees can also provide information to increase the institution's understanding of customer attitudes, preferences and behaviour. Another benefit of utilising these employees as BI sources is that they can be approached with pertinent questions in a direct manner. Being internal to the organisation, the risk and cost of using these sources are relatively low when compared to using external sources. By asking an employee how and why he/she decided to acquire a specific product from the institution, BI staff members can obtain information regarding the decision-making processes of customers that have similar characteristics (e.g. age, income, qualifications, cultural background, lifestyle, etc.). Ackerman and Wickens (2001:89), referring to these BI sources as 'staff customers', point out that it was surprising that none of the 33 banking institutions that participated in their research viewed internal customers as an important BI source. The same applies to the SA banking institutions that participated in the research for the purpose of writing this dissertation, and appeared to emphasise the collection potential of staff members that have contact with customers, or can provide information on competitors.

- **Internal electronic sources.** Banking institutions need to maintain extensive internal electronic databases in order to support their operational processes. These internal databases can typically provide a wealth of customer data, product data, banking transactional data and channel data. In order to deal with the vast amounts of data stored in various electronic databases across banking institutions, it is common to find that data from various banking systems are integrated and stored in a central repository/database (a operational data store or a data warehouse). For banking institutions such a central database is a very important internal source of data/information, not only for BI purposes, but also for management reporting and analytics. It is especially for those BI assignments that relate to customers that such a repository becomes an important source. By sourcing customer data from all the operational systems and electronic customer touch points of a banking institution, BI collectors can obtain access to a very valuable internal source of customer data. Other typical internal databases that are utilised as BI sources include subject-oriented internal knowledge bases, internal library databases and internal intelligence databases.

5.2.4.2 External BI sources.

(a) **The nature and value of external BI sources**. External BI sources can also play an important part in addressing intelligence gaps. It is not uncommon to find that BI collectors often place too much emphasis on extracting information from internal sources due to the ease of access. There are many advantages to using external BI sources especially since these sources are not influenced by internal events or regulations of an organisation. The importance of external BI sources are confirmed by Peter

Drucker (1998:online) when he suggests that top management needs an information system that allows for 'the collection and organisation of outside focused information. All the data we have so far, including those provided by the new tools, focus inward'. The strong focus on internal data and information is also typical of banking institutions. Steele (2000:164) agrees with Drucker when he points out that 'the heart of the matter is not what you already know, or internal information, but rather what you don't know, or external information'. Bernhardt (1993:179) also emphasises the importance of external sources when he states that 'interviewing primary sources outside the organisation is the cornerstone of an effective CI collection process'.

(b) Typical external BI sources. Several external BI sources are typically utilised by banking institutions during the collection process. They include the following:

- **Business Publications**. All the SA banking institutions that participated in this research makes extensive use of business publications during the collection stage of the BI process. These publications range from the annual reports of competitors and corporate clients to press clippings and surveys published in business journals. In addition to this, all the SA banking institutions that participated in this research subscribe to the publications/reports published by industry research institutions.

- **Internet**. The importance of the Internet as a source of information during the collection stage of the BI process is confirmed by the research conducted for this dissertation. Despite issues around determining the accuracy of information published on the Internet, BI staff often use the Internet during as a starting point when looking for

external information. In this regard they would typically use the results of Internet search to identify other potential sources of information.

- **Commercial On-line Databases**. All the SA banking institutions that participated in this research makes extensive use of commercial online databases. These are typically used when BI staff require in-depth industry information or detailed company information that is not internally available.

5.2.4.3 Balance between internal and external BI sources

It should be noted that both internal and external sources could provide primary and secondary information (Bernhardt, 1993:173). Just as a balance has to be found between primary and secondary information sources, a balance between internal and external information sources is also essential. Whereas too much emphasis on internal sources may provide biased information, too much emphasis on external information could result in costly collection efforts that yield information that is not specific to the situation experienced within the banking institution.

5.2.5 Public and confidential BI sources

Another approach to categorise BI sources, is to distinguish between BI sources that are public or 'open', and those that are not in the public domain. It should be noted that both public and non-public BI sources could also be classified in terms of primary and secondary sources. These sources could also be internal and/or external to the banking institution.

5.2.5.1 Public domain 'open' sources

(a) The nature of public domain sources. In discussing these BI sources, Bernhardt (1993:177) refers to an infinite 'range of open sources – mainly published' that provides 'little in the way of real intelligence value'. Steele (2000:108) refers to open-source information as consisting of ' volumes of multi-media and multi-lingual information gathered for further processing and consideration'. Like Kahaner (1998: 59), Steele (2000:200) defines open sources as public domain information. Kahaner (1998:59) points out that in a regulatory business environment, organisations need to comply with regulations, which leaves 'a paper trail' of information. In addition to this 'regulatory' type of public domain information, there are various other types of public domain information that Kahaner describes as 'a vast sea of data that is open and available to anyone who seeks it'. Typical examples of open sources include, central and regional government departments, the media (printed and electronic), professional bodies, trade associations and the Internet. Kassler, (cited in Miller, 2000:113) confirms the importance of public sources, especially news resources, when she states that 'news sources have always served as essential tools in the intelligence research arsenal'. The ease with which news resources can be accessed makes them a popular BI source for collectors. Kassler mentions that news resources can be accessed in a number of ways, including 'print, commercial online archives, electronic alerting services and through the Internet'.

(b) The value of public domain sources. In comparing the qualitative value of 'open' sources with the value of primary resources, Bernhardt stipulates that the relative intelligence value of open sources is low. In contrast to Bernhardt's views, Steele (2000:128) emphasises the importance of 'open source information' (OSIF), which he argues is a critical input for the production of what

Steele terms 'open source intelligence'. Bernhardt seems to confuse the distinction made between primary and secondary sources with the difference between public and non-public sources of information. From the researcher's perspective, public or 'open sources' can also be primary sources. A typical example of an open source is the annual financial statements of a listed company, which contain primary information that is published in the public domain at the close of a financial year. The annual reports and financial statements of all the major SA banking institutions provide primary information and are available in the public domain.

5.2.5.2 Non-public domain and confidential sources

(a) **The nature and value of non-public domain sources**. It is not uncommon to find that information required to address a BI gap is not available from public domain sources. This does not imply that the information is private or confidential, but rather that it could be obtained if the correct source can be identified and is correctly approached. A typical banking example of this is where customer surveys are conducted to determine customer perceptions of a banking institution's service or market position. Typically such information would be extremely valuable to a banking institution but this is often not public domain information, unless it is published/made available to the public. Banking institutions often purchase this type of information from research companies. Kahaner (1998:80-87) refers to a number of methods used to gather non-public domain information and highlights some of the BI sources that are important in this regard. According to Kahaner, sales staff members are typical sources of non-public domain information. In their daily effort to sell a product/service, they not only have the opportunity to collect non-public-domain information, but they instinctively collect such information in order to assist them 'to make the sale'. Unfortunately salespeople rarely share their information on customers and

competitors unless they are provided with incentives to do so. One of the SA banking institutions that provided input for this dissertation has implemented an incentive programme to entice staff members to collect and share information of value for the BI programme.

(b) **The nature and value of confidential sources**. Unfortunately, BI is often associated with industrial espionage, which involves the use of illegal and unethical methods to obtain access to information that is confidential and classified. Steele (2000:128) claims that one of the reasons for this misconception is 'the conventional understanding of intelligence as information that is inherently classified'. In fact, confidential information can be collected for BI purposes in a legal and ethical manner. This usually requires that the collector obtain the consent of the BI source. A typical example of this is when confidential salary and personal asset information is collected by a bank, in order to determine a customer's ability to qualify for credit. It is of critical importance for banking institutions to obtain this confidential information as it assists the banking institution not only to determine the amount it would be lending to a customer but it also forms the basis for the banks financial risk management. Another example is where banking institutions collect information on their customers' credit card transactions, not only to provide their customers with banking institution statements, but also to understand customer lifestyles. This in turn can be used to segment the customer base and assist the banking institution to offer specific products/services to a customer.

5.2.6 Directed and non-directed sources

For the purposes of this dissertation the researcher would also like to classify BI sources as sources that can be directed, and those that cannot be directed. This

classification, often used by intelligence professionals, can assist collectors when they have to complete collection tasks under severe time constraints.

5.2.6.1 The nature and value of directed sources

Directed sources, which are often human BI sources, can be guided/directed by a collector to find very specific pieces of information. These sources are very valuable if they have access to the specific information required. A consultant or staff member being directed to obtain marketing material on a competing product from a competitor's branch office could be classified as a directed source. Electronic sources could also be directed to filter and search for specific pieces information as these become available in the public domain. Typically, directed sources should collect more relevant information/knowledge than sources that are non-directed. One major advantage of using these sources is that, if they are properly directed and they have the applicable access to information, relevant information could be obtained relatively quickly.

5.2.6.2 The nature and value of non-directed sources

These sources, i.e. those that cannot be directed, often provide irrelevant information/knowledge to the collector. Publications not commissioned by the banking institution or company websites are typical examples of non-directed sources in the public domain. BI collectors need to search through the information provided by these sources to find information that could be used to address the BI gap. The value of these BI sources are often determined by the accuracy and relevancy of the content.

5.2.7 Electronic and non-electronic sources

Another useful method for classifying BI sources is to distinguish between electronic and non-electronic sources. This classification can assist collectors in planning how to gain access to BI sources.

5.2.7.1 The nature and value of electronic sources. These sources abound and the focus is generally on remote access and the use of electronic search methods to obtain information. One of the challenges facing collectors when dealing with these sources, if they are external electronic sources, is to be able to verify information (especially if it is collected via the Internet). Electronic sources include websites of clients, competitors and research institutions, and commercial databases. Their value often lies with the ease of gaining access to these sources as well as the ease with which information can be electronically copied and manipulated.

5.2.7.2 The nature and value non-electronic sources

In the case of a human source, the collection of information would require making contact with the source. This provides an opportunity for two-way communication, as well as opportunities to verify the information obtained. Gilad and Gilad (1988:88) refer to these sources as field sources. The importance of using human sources or human networks for the collection of information is recognised by Cronin (cited in Sigurdson and Tagerud,1992:155), who refers to these networks as 'soft networks'. Cronin states that these networks could provide 'much potentially useful information, e.g., gossip, leads, tips, opinions, speculation, insights, and is transmitted through a variety of informal exchange mechanisms'. In addition to this Cronin notes that these networks form an essential component of the more formal and technology-based collection sources. It is important to note that Cronin refers to informal human source

networks and an informal exchange of information. Formal human source networks are common in banking institutions. Other non-electronic sources include printed media and other paper-based reports that could contain valuable information that may not be accessible via electronic means. Kassler (cited in Miller, 2001:98), referring to the printed media as 'the traditional source', confirms that printed sources remain an important source in BI assignments. Printed reference guides and business are often used as a starting point for the collection of business information.

5.2.8 Sources used by SA banking institutions

Based on the interviews conducted for this dissertation, the BI sources typically used by SA banking institutions can be depicted as follows:

Internal sources		External sources		
Non-electronic	Electronic	Human/ institutions	Non-electronic publications	Electronic
Publications in library Internal collection network BI champions and agents	Internal Intelligence System. Internal Knowledge system Data warehouse	Industry consultants. Intelligence consultants. Market research companies. Universities Government institutions	Industry reports Market reports	Commercial databases News-clipping services Internet

Table 5.2 Examples of sources typically used by SA banking institutions

From the above it is clear that these institutions make use of both internal and external sources, as well as human, electronic and non-electronic sources.

5.3. *Approaches to the collection process*

In the literature, two fundamental approaches to BI collection are identified. Kahaner (1998:56) refers to one approach that requires a specific BI requirement to be determined before the collection process is executed. This is similar to the reactive approach when dealing with BI requirements (as discussed in Chapter 4 paragraph 4.4.1). The second approach emphasises the need to collect information of interest on an ongoing basis. Such information is stored and updated so that it can be used when needed. This approach is similar to the proactive approach of dealing with BI requirements and is linked to the ability of BI staff to act on their own initiative. Kahaner (1998:56) suggests that both these approaches need to be followed.

According to Steele (2000:201), 'Just in time' collection and intelligence production, which he refers to as 'just in case collection and archiving', is far less expensive and far more useful than the proactive approach. Although the proactive approach suggested by Kahaner has advantages, it must be noted that it has some resource implications and may be practical only for very large corporations. Essentially, this proactive approach requires collectors to collect data, information and knowledge of interest without trying to address a specific intelligence gap. This is feasible if collectors have spare capacity and if an organisation has the necessary IT infrastructure to store and effectively retrieve this data/information/knowledge when it is needed.

It should be noted that the proactive approach to collection must not be confused with the ongoing collection tasks associated with intelligence requirements for current intelligence. From the researcher's perspective, BI programs in SA banking institutions have to produce BI products under both time and financial constraints, which suggests that Steele's approach of 'just in time' collection

may be the most practical approach to adopt. Although all three of the banking institutions that participated in this research obtain and store information flowing spontaneously from their internal collection networks, this flow of information is linked to BI requirements. In SA banking institutions there does not seem to be a dedicated BI effort to collect as much as possible information simply because it might become useful at a later stage. One of the banking institutions involved has built in a comprehensive 'filtering' process to prevent a situation where irrelevant information is pushed into the BI system.

5.4 Collection methods

The methods applied to obtain information/knowledge from BI sources would typically vary, depending on the type of source to be used in the collection process and the associated time and budget constraints. Professional BI collectors place emphasis on identifying and using the most appropriate method in relation to a specific source, in order to ensure that the collection effort is as effective as possible. Electronic searches are generally considered to be the most appropriate method to use when collecting information from a searchable electronic source. When collecting information from human sources, conversations and interviews are typical methods to be used, but depending on the individual to be interviewed, a collector may decide to use a specific interviewing technique that would be the most appropriate. When collecting information on new products, and appropriate method to use would be observing and/or purchasing an example of such a banking product.

It is important to note that the methods used during the collection process should be ethical and legal. Moving beyond these boundaries could be considered to be industrial espionage. Within a banking institution, all BI staff members and those involved with BI should be able to distinguish between collection methods that are considered to be appropriate and those that should be avoided.

The Royal Bank of Canada (2001) provides a basic model of collection methods that could be used to obtain primary information on competitors and customers. This banking institution emphasises that the specific focus should be on the collection of competitor and customer information, and suggest the following methods:

Methods to collect primary information on competitors	Methods to collect primary information on customers
Store visits	Phone interviews
Test goods	Face-to-face meetings
Obtain competitor reports	Mail surveys
	Focus groups

Table 5.3 Collection methods (Royal Bank of Canada,2001)

Although the above table does not provide an extensive list of collection methods, it provides an indication of the methods typically considered by a banking institution to be of use for BI purposes. The importance of events for collection purposes also needs to be briefly discussed.

Events, whether they are internal or external company/industry events, provide an opportunity to collect information. Although an as such cannot be classified as a BI source, there are methods specifically developed to collect information during events. During internal events, banking institutions can determine that they need to invite specific guests in order to create an opportunity for BI collectors to make contact with these guests. Typically collectors would compile contact reports after having met with these guests. External events, such as industry-specific events or trade shows, provide an opportunity to collect non-public-domain information by making contact with potential customers,

competitors and/or potential suppliers. Some typical methods used during events include observing the products/services being offered by competitors and observing potential customers visiting the exhibitions of competitors.

5.5 *Collectors of information*

Staff members who perform the task of collecting information from BI sources, can be referred to as collectors. When planning and structuring a collection function or team, any one of several approaches could be followed. One approach is to use a select group of BI staff members to execute the collection process. Another approach is to establish an internal collection network that also includes staff members who are not dedicated BI specialists. Gilad and Gilad (1988:55) prefer the latter approach and point out that the internal collection network consists of staff members that are not the sources of information, but are 'those individuals who access sources of information'.

Even though an organisation may have an internal collection network, the services of external collectors may be required. In this regard, intelligence research companies, market research organisations and consultants can be used as collectors. Gilad and Gilad (1988:87) point out that 'both internal and external collection are useful, each with its own limitations'. One of the reasons for making use of external collectors is to protect the identity of the company that requires the information to be collected. Another reason for making use of external collectors could relate to the limitations of the internal collection network. It could be that internal collectors may not have any available sources to exploit in a particular market, whilst the external collector may have already established information sources in that particular market. External collectors with the required access to sources can prove valuable for the collection process especially when there are time constraints to deal with on an intelligence assignment. Gilad and Gilad (1988:87) cautions against placing too much

emphasis on external collectors and suggest that external collectors should supplement the internal collection network.

Although the concept of an internal collection network, as suggested by Gilad and Gilad, has many advantages from the researcher's perspective, some collection tasks require specialist collectors. Not all employees are necessarily skilled or have the personality traits of an effective interviewer or information scientist. The researcher believes that an effective collection structure should consist of specialist BI collectors, supported by both an internal and an external collection network.

Research conducted amongst SA banking institutions indicated that all the participating banking institutions emphasised the need to establish and maintain internal collection networks. All of the banking institutions also made use of external collectors to support the internal network. Only one of the participating banking institutions appeared to have established an external collection network. None of the participating banking institutions seemed to have established dedicated BI collection teams. Typically, BI staff members were involved in both collection and analysis activities.

5.6 A process for the collection of information

5.6.1 Different perspectives on collection processes

When Bernhardt (1993:171) refers to collection and processing as 'respectively the second and third steps in the intelligence cycle', it is clear that he refers to the stages of the intelligence process as designed by the CIA. The processing stage of this specific intelligence process is aimed at converting/transforming the data/information collected into a format that is suitable for the analysts to deal with during the next stage of the process (analysis stage). Due to the fact that

the CIA intelligence collection effort includes the collection of vast amounts of signals, radar and imaging information, a specific stage was required to convert data from various formats and often from various languages into a format that could be used by analysts. Due to the nature of information collection for BI purposes in the banking environment, a specific processing stage is not required. Should the data/information collected require conversion or translation, e.g. from a foreign language, this would typically be done as part of the collection process.

In the relevant literature, various approaches to collecting information for BI purposes are identified, including the traditional approaches and the 'diamond paradigm'.

5.6.1.1 Traditional approaches

Bernhardt (1993:172) suggests a collection process consisting of four steps. These steps should be executed in the following sequence:

- Determine the research design.
- Determine the data and information collection methods.
- Design the researcher's collection forms and, if possible, agree on these with the intelligence consumer.
- Collect the data and information.

The researcher has some concerns regarding this process. By referring to a research design, this process seems to include some of the steps of the requirements definition process. The KITs and KIQs identified in the BI requirements process provide a framework or 'research' design for the BI assignment. The focus of the collection stage of the intelligence process should be on the planning and collection of data/information/knowledge. This process also makes no reference to the identification of the most appropriate sources to

utilise during the collection process. As mentioned in the paragraph 5.4, the type of source selected would determine the most appropriate method to use during the collection process.

The collection process suggested by Gilad and Gilad (1988:56) can be summarised as follows:

- Establishment of an internal collection network
- The identification of sources of information
- Obtaining access to sources of information
- Collection of the relevant data/information
- Report information according to pre-established communication procedures

In this process, the identification of sources (which is lacking in Bernhardt's process) is a prominent step, which is concluded before any method is applied to obtain access to sources. The reporting of information according to a predefined communication procedure ensures that information/knowledge collected during the process is captured in a standard format, which is important for later retrieval. The only point of concern regarding this process is that it places too much emphasis on the internal collection network (also refer to paragraph 5.5).

A generic collection process, which conforms to the traditional or 'linear' approach to collection, can be depicted as follows:

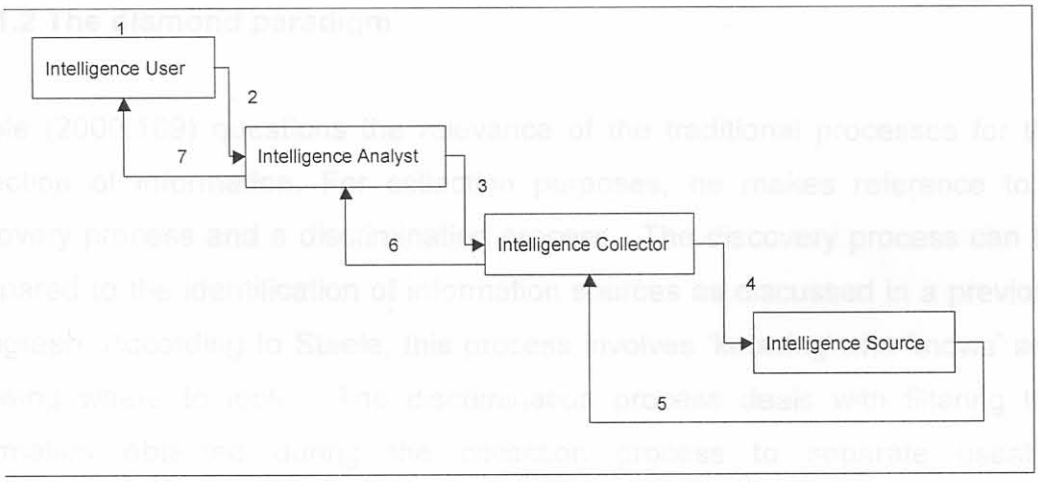


Figure 5.1: The linear collection approach

The first step (1) requires the intelligence user to determine his/her business problem and then to communicate this to a BI analyst (2), who will assist with defining BI requirements. The analyst will task the most suitable BI collector/s (3) who have knowledge of and access to the information sources. The collectors (4) will gain access to the sources and data/information/knowledge will be obtained from the source (5). The information will be verified, or converted if required, and given to the analyst (6). The analyst will then evaluate the information in terms of relevancy and accuracy. On completion of this, the analyst will perform a process to generate intelligence output before providing this to the intelligence user (7). Should the user request receipt of the information without any analysis having been performed on it, the information will pass from the analyst to the intelligence user. According to Steele, this process is too slow and not workable in a fast-moving business environment.

5.6.1.2 The diamond paradigm

Steele (2000:109) questions the relevance of the traditional processes for the collection of information. For collection purposes, he makes reference to a discovery process and a discrimination process. The discovery process can be compared to the identification of information sources as discussed in a previous paragraph. According to Steele, this process involves 'knowing who knows' and 'knowing where to look'. The discrimination process deals with filtering the information obtained during the collection process to separate useable information from information that would not be useful for the intelligence process. Probably his main departure from the traditional approach relates to the interaction between various role players during the collection process.

Steele (2000:201) promotes an approach that he refers to as the diamond paradigm. In this approach the intelligence user, the BI collector, the BI analyst and the source communicate directly with one another and information flows freely between these role players.

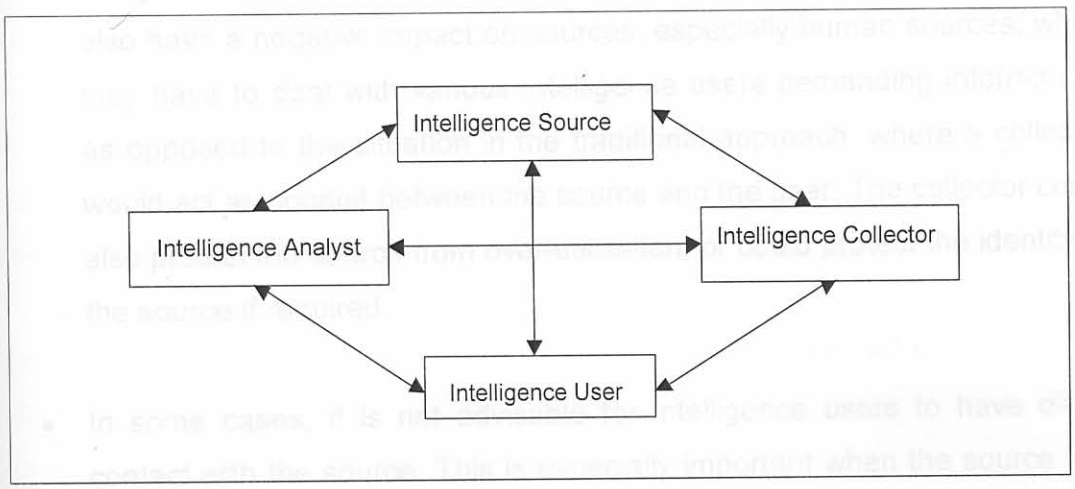


Figure 5.2: The Diamond Paradigm

Although Steele's approach is not without merit, especially when intelligence assignments have to be conducted under severe time constraints, a number of negative implications are associated with it. These include the following:

- It is possible that **information** that has not been verified or evaluated could flow directly between source and intelligence users due to time constraints. This could lead to a situation where the intelligence user uses 'raw information' as the basis for decision-making and taking action. The onus is on the intelligence user to evaluate the raw information, or refer it to the analyst for review.

- From an intelligence-management perspective, the diamond paradigm provides some challenges. One challenge is to ensure that the intelligence user is linked to the most appropriate source and that the most appropriate method of collection is used. In the diamond paradigm the user can make contact directly with the source without the collector or analyst necessarily having knowledge of such contact. This situation could also have a negative impact on sources, especially human sources, when they have to deal with various intelligence users demanding information, as opposed to the situation in the traditional approach, where a collector would act as conduit between the source and the user. The collector could also protect the source from over-utilisation, or could protect the identity of the source if required.

- In some cases, it is not advisable for intelligence users to have direct contact with the source. This is especially important when the source is a member of a competitor organisation, or where the possibility exists that the intelligence user's ultimate intentions would become apparent when

dealing directly with sources.

- Finally, it should be noted that unless users are trained in collection methods and are proficient in them, involving them directly in the collection could be less effective than following the linear process. A typical example of this would be where an intelligence user obtains access to an on-line database, but does not know how to develop a search strategy and is unable to use the method that would be best for searching the particular database. By giving this collection task to a qualified information scientist, the electronic search could potentially be completed with more accuracy and in less time.

During the research conducted n SA banking institutions, it became evident that not one of the participating banking institutions have implemented the diamond paradigm as described by Steele. In all the participating banks, there is an informal/free flow of information between analysts, collectors and sources. In two of the banks there are BI champions/agents for each business unit, who are also responsible to act as collectors and conduits for collection tasks. In none of these banks a situation exists where intelligence users actively engage with BI sources as part of the BI collection process without the involvement of BI staff. One of the banking institutions has adopted a more formal 'linear' approach to collection. In order to prevent their process from becoming slow and inefficient, an IT system was designed and developed to facilitate the collection process.

A seven-step process for BI collection, based on the traditional approach and Steele's diamond paradigm, as well as the researcher's practical consulting experience of BI collection, is suggested.

5.6.2 A seven-step process for BI collection

In the light of Steele's criticism of the traditional approach towards collection in the intelligence environment and the need for a more dynamic process, the following process could be considered for the collection stage of the BI process. It should be noted that this process is designed for BI programmes with established internal and external source networks, and access to the services of specialist BI collectors.

This seven-step process is more pragmatic than the typical linear approach in that it allows for the involvement of intelligence users during different stages of the process. It emphasises the importance of understanding the sources available and then planning the collection effort before collecting data, information and knowledge. In this respect, the process remains true to the fundamentals of collection as practised in the intelligence profession.

The process is triggered by the 'intelligence gap', as described in Chapter 5 of this dissertation, and could be depicted as follows:

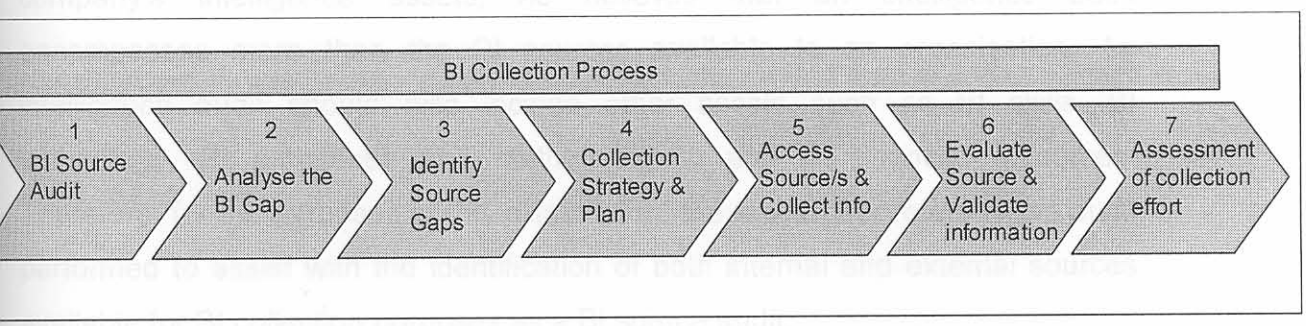


Figure 5.3: A seven-step BI collection process

Step 1: BI source audit. Knowing which sources are available to BI collectors is a critical component of this collection process. The purpose of this audit is mainly

to identify the existing data, information and knowledge sources, and networks already available (both internal and external) to BI collectors. Secondly, the purpose is also to determine the extent to which these existing sources and networks are being utilized.

Generally speaking, there is a wealth of BI information sources at the disposal of SA banking Institutions. One of the banking institutions that participated in this research confirmed that it had completed such an audit as part of the collection process. The importance of a BI sources audit is confirmed by Bernhardt's (1993:173) claim that most of the information required for competitive intelligence purposes is to be found within organisations, but that 'the challenge lies in finding it'. Fuld (1988:64) suggests that, in order to identify an organisation's information sources, an intelligence audit should be conducted. He defines an intelligence audit as an 'inventory of your **company's intelligence assets'**. To this he adds: 'These assets include private competitor files, individually constructed databases, market studies purchased outside the library, as well as names of industry and competitor experts within your company.' Although the researcher agrees with Fuld's definition that an intelligence audit is an inventory of a company's intelligence assets, he believes that an intelligence audit encompasses more than the BI sources available to an organisation. An intelligence audit should also include other assets such as BI skills, BI technology, BI processes and methodologies, and BI financial resources. Therefore, for the purposes of this dissertation, the researcher refers to the audit performed to assist with the identification of both internal and external sources available for BI collection purposes as a BI source audit.

A BI source audit may identify a surprising number of valuable internal and external information and knowledge sources that are available and accessible to BI collectors. In addition to the identification of sources that can be used for BI

purposes, such an audit could also indicate reliance on only a small number of sources whilst a number of others are under-utilised. It is important to note that BI source audits need to be conducted periodically, as new sources may appear and others may not be available for further use.

The BI source audit can also assist in identifying areas of source duplication. In this regard it is not uncommon to find a number of departments within a banking institution subscribing to the same publication.

The identification of the existing data/information/knowledge sources is but one part of the BI source audit. Once identified, the sources must be classified as per the classifications of Table 5.1. In addition to this, the area of expertise of each source should also be identified. This should indicate which sources could be utilised to obtain expert input on specific topics. Sources should also be classified in terms of the accuracy of information provided and their reliability. Steele (2000:109) refers to this as the careful discrimination between good and bad sources, relevant and irrelevant sources, and finally between cost-effective and cost-prohibitive sources'.

It is also important that as part of the audit, sources should be classified in terms of their access to information. Some human sources may have access to the executive management and strategic planning information of competitors, while for others access may be restricted to operational activities. The same classification could be applied to electronic sources, as some databases may only provide access to specific topic-related information.

An example of a matrix that could be used during the BI source audit is depicted below:

BI source	Source type (Primary/secondary) (Internal/external) (Electronic/non-electronic) (Directed/non-directed)	Reliability of source	Accuracy of information	Access to information (Topics) (Types) (Levels in organisation)	Constraints (Costs) (Time)
Source 1					
Source 2					

Table 5.4 BI source audit

This matrix must be updated at regular intervals by obtaining input from Step 6 (evaluation of sources and validate information) and Step 7 (assessment of collection effort) of the collection process.

In addition to the above, it is important to understand the 'idiosyncrasies' of BI sources. Kahaner (1998:65) emphasises the importance being thoroughly familiar with BI sources as 'some are more complete, some oversimplify and some have biases'. A typical example of this is where BI collectors, after using a publication for some time, can identify those writers/reporters that are more knowledgeable and whose articles are more accurate that those written by other reporters covering the same topic or contributing to the same publication.

Step 2: Analysis of the BI gap. Typically, this step would require BI analysts, collectors and intelligence users to discuss the information gaps and reach agreement on how the collection task should be approached. During this step it is also important to confirm the roles and responsibilities involved in the

collection process. It could be decided that intelligence users need to form part of the collection team, and that they need to have access to the sources of information due to time constraints. This is similar to Steele's idea of having the intelligence user involved in the process, but this involvement will be agreed 'up front' and the collector/s will be part of the process. Another important task associated with this step is the reviewing of the KIQs that were formulated as part of the BI requirements definition process. In their report on their research, Ackerman and Wickens (2001:81) make specific reference to the fact that 'formulated KIQs may not contain enough detail for collection staff to plan and execute the collection task'. When KIQ's are analysed at a lower level, collectors are able to start identifying the most appropriate sources and techniques to use during the collection effort. A typical banking KIQ could relate to determining the reasons why certain groups of customers move their banking accounts from a competitor to the banking institution conducting the BI assignment. In this case, posing the question in this 'KIQ' format to a particular group of customers could result in some customers providing answers and others deciding not to share their motives. Responses may be more forthcoming if this KIQ could be changed to a collection question, e.g. 'Would you care to tell us what attracted you to our banking institution?'

Step 3: Identify BI source gaps. On completion of the above step, the BI collector should have a clear view of 'what' data, information and knowledge need to be collected. The next step is to identify which of the internal and/or external sources would be the most appropriate for obtaining the required information. In this regard the importance of having completed BI source audits needs to be emphasised. Unless the collector has a clear picture of all the BI sources at his/her disposal, chances are that he/she may utilise a source that is not suitable or, even worse, identify a source gap. Source gaps develop when the information required cannot be obtained from any of the existing data,

information and knowledge sources. Typically, BI source gaps are dealt with by developing new sources and expanding the collection network.

Step 4: Compile the collection plan. In order to prevent the collection effort from turning into an ad hoc process, where collectors, analysts and intelligence users collect information from sources without any form of coordination, the collection effort must be properly planned. This is especially important when customers are used as BI sources, and when information on competitors is being collected. When direct contact with a customer is deemed to be an appropriate method of obtaining information, the banking institution would not want several staff members contact the same customer and pose the same questions. The same applies to the collection of competitor information. If a number of staff members phone a branch of a competing banking institution and ask the same questions, the competitor banking institution might realise that a BI collecting process is being conducted. Similarly, a collection effort focussed on electronic searches should also be planned. In most cases the most appropriate database, or databases, and the query method or language to be used need to be identified. Access may require subscription if it is an external database. Having a specific set of questions, searching in more than one language, or even making use of acronyms or different spellings of key words used in the search, could form part of the search strategy when exploiting a text-based database. Determining a collection strategy and planning the collection effort are essential to ensure the optimal utilisation of BI collectors and information/knowledge sources.

- **The collection plan.** In order to execute their collection tasks, collectors need an operational collection plan. The purpose of this collection plan is to determine which intelligence gap is to be dealt with by which collector, and to indicate the sources that will be utilised and the collection methods

that will be applied. Generally, the first step is the listing of all the BI requirements, KITs and KIQs, and the intelligence gaps as defined in the BI requirements definition process. All the specific collection questions related to these intelligence gaps, as identified during the analysis step of the collection process, should also be listed. Once this list is complete, all the potential sources of information/knowledge that could provide the required information are listed per intelligence gap. In order to do this effectively, the collectors need to know the capabilities of all the information sources at their disposal. The next step is to identify the most appropriate source/s to provide answers to the formulated questions. Once this has been done, the most appropriate method for collecting the information from the specific source is determined. By doing this an initial collection plan is established, which could be depicted as follows.

Intelligence requirement and gap	KITs	KIQs	Specific collection questions	Available sources	Appropriate source/s	Method for collection	Collector

Table 5.5 The collection plan

The collection plan could be expanded to include the prioritisation of the intelligence requirements and a discussion of the constraints to which the completion of the task will be subjected. Of specific importance is the time and budget constraints associated with the collection task. In some cases, BI managers would add target dates to the plan and monitor the status of the collection effort using this plan.

One of the banking institutions that participated in this research, places a lot of emphasis on having an updated collection plan, similar to example depicted

above. This institution has an overall collection plan for the bank, which integrates all the BI collection plans of the various business units. The business unit collection plans typically contain the BI sources available to that business unit. This allows staff at the corporate headquarters level to have an overview of all the collection tasks in the banking institution and limits duplication of effort.

Step 5: Obtain access to sources and collect information. On completion of a collection plan, the collection tasks can be initiated. This typically starts with the collector having to establish contact with and gain access to the source. The next step is to pose the collection questions/query and to obtain the relevant data, information and knowledge from the source. When dealing with a human source, and depending on the most appropriate method, the collector may need to make an appointment and conduct an interview. Sometimes a brief telephonic interview will suffice. When dealing with electronic sources, especially those that require subscription, the collector may be required to register as a user before he/she will be able to gain access to sources and make queries. An integral part of this step is to capture and store all the data/information/knowledge obtained. In this regard, a specific database may be required where this 'raw' input from sources can be stored until the collectors can perform the validation step. One of the banking institutions that participated in this research uses a standard format for capturing all information collected in a collection report format.

Step 6: Evaluate source/s and validate information. Once the 'new' or 'raw' data, information and/or knowledge has been collected, it should be validated and, if required, converted into the format that is required by the analyst/intelligence user. It is also important to evaluate the source/s used during the collection process. A model developed for the validation of collected information/knowledge and evaluation of sources (Ackerman and Wickens:

2001:84) could be adapted and used by collectors during this step of the collection process.

A derivative of this model is depicted below:

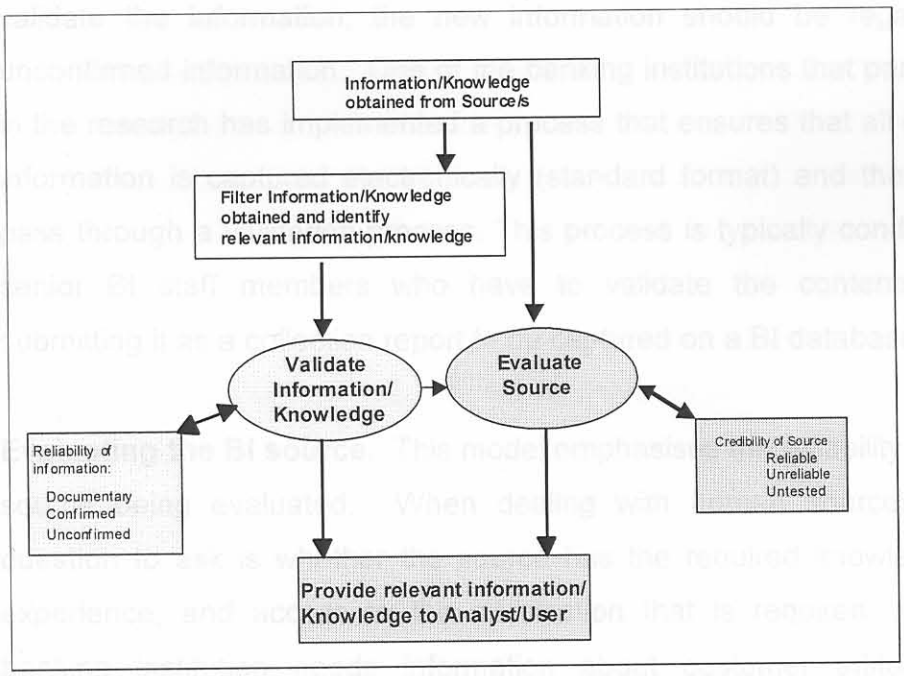


Figure 5.4: A model for evaluation of sources (Ackerman and Wickens, 2001:84)

- **Validation of information/knowledge**. In this model collectors filter all the bits of collected data/information/knowledge in terms of their relevance in addressing the collection questions and intelligence gap as per the collection plan. Only the relevant data/information/knowledge is then validated in terms of the reliability of the information. To determine the reliability of the 'new' information/knowledge, it is usually compared with the existing data/information/knowledge/intelligence within the organisation, and by comparing/testing it against other sources that also provided information/knowledge on the same topic. In cases where other

independent sources confirm the information, the information can be classified as confirmed. Kahaner (1998:56) also emphasises the importance of validating information obtained from both primary and secondary sources. In cases where collectors/analysts are unable to validate the information, the new information should be regarded as unconfirmed information. One of the banking institutions that participated in the research has implemented a process that ensures that all collected information is captured electronically (standard format) and then has to pass through a validation process. This process is typically conducted by senior BI staff members who have to validate the contents before submitting it as a collection report to be captured on a BI database.

- **Evaluating the BI source.** This model emphasises the reliability of the BI source being evaluated. When dealing with human sources, a key question to ask is whether the source has the required knowledge and experience, and access to the information that is required. When a banking institution needs information about customer attitudes and preferences, the customers themselves are better able to provide reliable information than an external database or the media. In this model sources are classified as reliable, unreliable and untested. By keeping records of data/information/knowledge collected from these sources and the reliability of the data/information/knowledge they provided in the past, the historical performance and reliability of each source could be established. This can assist collectors to evaluate sources efficiently.

- **Providing validated information**. On completion of the validation, analysis and conversion tasks, the collector needs to make the data/information/knowledge available to analysts/intelligence users. This could be done through verbal communication, or by using the standard-

format 'collection reports" that are used in some banking institutions. One of the banking institutions that participated in this research has implemented a process to facilitate the capturing of collection reports in a standardised format on the corporate intranet.

Step 7: Assessment of the collection effort. In order to assess the efficiency and effectiveness of the collection process, Ackerman and Wickens (2001:85) suggest that a workflow system should be considered to monitor the progress of all collection tasks and to update the collection plan. The collection effort needs to be assessed in terms of addressing the BI gaps. In this regard, feedback would typically be obtained from analysts and intelligence users regarding the accuracy and relevance of the data/information/knowledge collected. In addition to this, the collection tasks also need to be assessed in terms of the extent to which they succeeded in providing the required information within time and budget constraints.

5.7 Conclusion

Vast numbers of data, information and knowledge sources are available to SA banking institutions. In order to identify the most appropriate BI source and then to obtain access to such a source, the BI collector should have a list of all the BI sources at his/her disposal. In this regard the importance of the BI source audit and the development of a collection plan cannot be stressed enough.

The research conducted in SA banking institutions confirms that many BI sources are utilised, but that the institutions involved may not be exploiting all their BI sources optimally, or do not have a list of all the BI sources available. Only one of the institutions confirmed that they had completed a BI source audit. Although SA banking institutions focus on developing internal collection networks, the value of using internal customers as part of these networks

appears to be underrated. Also, the development of formal external collection networks seems to be limited.

It is evident that there is a realisation of the need for a formal collection process, as all the institutions involved had already implemented such processes. The process implemented by one of the banks includes several of the steps of the seven-step process recommended in this chapter.

Ultimately, the collection stage of the BI process is aimed at addressing BI gaps, and in order to do so effectively and efficiently, BI collectors must have sound knowledge of available BI sources. This 'knowledge' goes beyond being able to identify and classify each BI source, and refers the ability to decide on the most appropriate source, based on the source's accessibility and credibility, regardless of whether it is a primary or secondary source.

CHAPTER 6: BI analysis and synthesis

'So I want it fast, I want it factual, I want it integrated. Please don't come out with a wheelbarrow and say, Hey, look what I got! I got all these jigsaw puzzle parts, and dump them down on my carpet and sit there and try to guess with me what sort of picture it makes. Please, put the puzzle together before you see me'.[5]

6.1 Introduction

After having collected data, information and knowledge during the collection stage of the BI process, the next stage deals with turning collected material into intelligence. The purpose of this stage is to produce intelligence output.

Although this stage of the BI process is referred to as the 'analysis stage', it should be noted that in order to generate intelligence, this stage involves the analysis, synthesis and interpretation of information. Rustman (2002:98) confirms this by stating that 'the term analysis as used in the intelligence profession is somewhat more than just analysing and picking apart the information that has been collected; it is more a process of synthesising and putting together all of the existing information that has been obtained on a particular topic and then examining it all to try make sense out of it'. This is also confirmed by Sandman (cited in Miller, 2000:69) who refers to analysis as the 'linkage between the raw-material data and the value-added product intelligence'.

Powell (2001:online) points out that an organisation's ability to perform accurate intelligence analysis may become a strategic differentiator for such an organisation, because 'All competing companies are, or soon will be, looking at more or less the same set of data, delivered in virtually real time. What will

[5] Sharer (cited in Bernhardt, 1993:3)

differentiate them is their ability to analyse it, make sense of it, and formulate and execute actions based on it'.

The aim of this chapter is to:

- Firstly, review existing literature on the approaches, methods and models that could be applied during the BI analysis stage
- Secondly, refer to the BI analysis methods and models used by SA banking institutions and propose a practical step-by-step process for BI analysis.

The importance of this stage in the BI process is briefly discussed in paragraph 6.2. This is followed by a discussion of a number of analysis approaches that could be adopted by BI staff members during the analysis stage. Also an overview is given of those methods and models typically used by banking institutions during BI assignments. Reference is also made to the analysis methods applied by the SA banking institutions that participated in this research. This is followed by a brief discussion of a practical step-by-step process that could be used for BI analysis. In last two sections, the role of the BI analyst and a few guidelines for successful analysis are discussed.

6.2 Importance of the analysis stage

There are several reasons why the analysis stage of the BI process is of critical importance. Some of these reasons are briefly discussed below.

6.2.1 Collected information is not enough

Rustman (2002:98) indicates that even in professional intelligence organisations, those collecting information would argue that 'the raw data does usually speak for itself', and therefore the need for a specific analysis process and the role of intelligence analysts are often questioned. Rustman (2002:98) points out that 'raw data does not usually tell the whole story'. From the researcher's experience, the importance of a systematic analysis process is questioned in banking institutions, especially when BI analysts request intelligence users to give them enough time to perform proper analysis. Rustman (2002:99) confirms the important role of the intelligence analysis stage and the role of analysts in the following: 'The analysts play a critical role in the intelligence process by sifting through all the information ...putting all the information in one place, providing context and making sense out of it in a thoroughly dispassionate manner.'

6.2.2 Intelligence users are not intelligence analysts

The role of the intelligence user in the BI process is to identify BI requirements and use the disseminated intelligence product in order to deal with business issues, and not to conduct BI analysis process. As Rustman (2002:99) points out, decision-makers are typically too busy to perform a systematic analysis process. Kevin Sharer's (cited in Bernhardt, 1993:3) remarks about 'putting together the puzzle' before meeting with the intelligence users, confirm that the analysis stage should prevent an information overload by providing interpreted and actionable intelligence. Powell (2001:online) agrees with this when he states that analysis should reduce the number of input variables that reach the decision-maker, and not add to the flow of information. In cases where intelligence users are provided with substantial amounts of collected data/information, as opposed to executing the analysis process, their decision-

making processes could potentially be complicated and delayed due to the effort required from them to distil information that is relevant and accurate.

6.2.3 Providing context

During the analysis stage analysts generally collate all the relevant information and generate intelligence within the context of the BI requirement. Thus the intelligence generated is focussed on addressing the BI requirement, and ultimately the underlying business problem that prompted the identification of the BI requirement. By putting all relevant information in the context of the BI requirement and the business problem/issue, analysts are better able to interpret and make conclusions about a particular topic/situation. If intelligence users received the collected information without any indication of the context, they could easily interpret the information in the wrong context, make wrong decisions, and take inappropriate action.

6.2.4 Providing 'missing links'

Ackerman and Wickens (2001:102) state that, BI analysts rarely have all the pieces to complete 'the intelligence picture'. The intelligence picture is the picture/view of a situation/topic that an intelligence analysts aim to piece together from the pieces of information at their disposal. Having complete, accurate and relevant up-to-date information to answer all the KIQs is a situation not often experienced by those involved in intelligence analysis, especially when dealing with predicting the future. As Herring (cited in Sigurdson and Tagerud, 1992:162) points out, 'The future orientation of intelligence stems from the recognition that competitive advantage is derived not so much from knowing what has already happened, but from knowing what is likely to happen'. Therefore, finding links between bits of information where the collection process has failed to obtain all

the relevant data is one of the tasks of the BI analyst. By following an analysis process, analysts are guided to make assumptions, deductions and conclusions regarding aspects of the BI assignment where information is sketchy or inaccurate, or where there is a total lack of information. This can serve to compensate for the lack of information experienced, and can, to some extent, address critical BI gaps. The identification of links between existing information elements and the identification of missing links are both part of the collation and the contextualisation process during BI analysis.

6.2.5 The analysis process generates intelligence output

In order to turn information into intelligence output, relevant information (related to KITs and KIQs) must be analysed, synthesised and interpreted. Without the analysis and interpretation processes involved, the output of the BI staff would be nothing more than repackaged information that may not add much value to the intelligence user. The analysis process requires that BI staff analyse information in detail before synthesising it. As Ackerman and Wickens (2001:102) point out, 'We need to understand the meaning of each of the relevant BI information pieces through analysis before deciding how the pieces should fit together (synthesis)'. If the analysis stage of the BI process is not completed, there will be no intelligence output to address the BI requirements defined during the first stage of the BI process!

6.3 Approaches to analysis

Due to the importance of the BI analysis stage for the generation of intelligence, BI analysts should review the analysis approaches described in the literature before attempting to analyse in an ad hoc manner. In this regard, Bernhardt (1993:52) identifies three traditional approaches for the analysis stage, and

Ackerman and Wickens recommend an approach that is directly linked to the BI requirements definition stage of the BI process.

6.3.1 Top-down analysis approach

This approach is typically concerned with understanding the macro business environment, and especially the strategic issues of competitors/customers, therefore it is suitable for addressing BI requirements that require a macro perspective. Bernhardt refers to this as an approach that deals with the 'big picture'. Viewed from a competitor intelligence perspective, this approach is useful when BI staff need to analyse the horizontal strategies of a competitor company with multiple product/business units. The coordination of the various strategies of business units within such an organisation provides a view of the competitor's overall game plan. Bernhardt (1993:54) identifies a number of analytical methods/models that can be used to assists with top-down analysis. These include the Boston Consulting Group (BCG) growth-share matrix, the product/market attractiveness-competitive matrix and the industry maturity-competitive position matrix.

6.3.2 Bottom-up analysis approach

The bottom-up analysis approach, also referred to as micro-analysis, is well-suited to situations where BI analysts have to address BI requirements that relate to specific strategic and tactical KIQs (requiring a detailed analysis of a particular topic). This analytical approach is usually very focussed and systematic. Bernhardt (1993:55) points out that this approach is mostly used to generate intelligence input for strategic planning purposes. Some of the typical analysis methods that could be used for micro-analysis include the Porter's 5 Forces

Model, value-chain analysis, SWOT analysis, competitor/customer profiling, core competencies and network analysis.

6.3.3 Time-based analysis approach

The time-based analysis approach is particularly suitable for dealing with BI requirements that relate to determining the future strategies and plans of competitors, changes in the business environment and potential threats. This type of analysis can be used to position an organisation to deal with this 'predicted' future environment. From a competitor-intelligence perspective, this approach emphasises a sound understanding of a competitor's strategic intent, strategic capabilities and key success factors, all of which allow a competitor to compete. Based on this and an analysis of the business environment, likely future strategies of competitors can be predicted. Some of the typical methods of analysis that could be used for time-based analysis include SWOT analysis, scenario development, timeline analysis, war gaming and mathematical trend analysis.

6.3.4. BI requirements-driven approach

Ackerman and Wickens (2001:107) suggest that, in addition to the three approaches recommended by Bernhardt, a BI requirement-driven approach be adopted for analysis. This approach builds on some of the elements of Bernhardt's three approaches, but emphasises the importance of adapting the analysis process and methods in order to address different types of BI requirements. In this regard, Ackerman and Wickens distinguish between BI requirements related to the future, the current situation and past events. This approach can be depicted as follows:

Future	During	Past
Predictive Intelligence Estimative Intelligence	Current Intelligence	Basic Intelligence Estimative Intelligence
The Analysis process and methods are geared towards predicting future events and identifying signals that could provide early warning	The Analysis process and methods are geared towards the analysis of events/topics while particular events unfold	The Analysis process and methods are geared towards analysis of past events and need to ensure completeness and often include a future orientated component.

Table 6.1 A BI requirements-driven analysis approach (Ackerman and Wickens, 2001:107)

- In the case of future-oriented BI requirements, the emphasis is placed on the identification and measurement of indicators or early warning signals that are typically related to market opportunities and threats. This usually requires detailed analysis of historic events, trend analysis and scenario development to identify future trends, indicators and scenarios. Once these indicators or warning signals have been identified, the BI collection effort is focussed on monitoring the environment for these signals and the analysis process is triggered when these signals are observed. The analysis of the strategic intent and capabilities of competitors in relation to predicted market/environmental conditions are also included in the analysis process.

- In addressing BI requirements related to current events, this approach requires that a near real-time analysis be conducted. This requires that collected data, information and knowledge be evaluated, collated and interpreted as analysts receive it. Ackerman and Wickens (2001:108)

point out that it is important must be filtered to establish relevance and confirm accuracy. In the light of current intelligence requirements, the analysis process is subject to severe time constraints and there is no time for the application of time-consuming analysis methods.

- Typically, requirements for basic and estimative intelligence involve intensive research and analytical processes, and are often less constrained by time issues. A typical example of this would be where BI staff members need to provide input for strategic planning cycles or deal with BI requirements related to a predetermined BI production schedule (see paragraph 4.4.4). In this regard, the analysts will emphasise the need to obtain as much as possible relevant information and to use a number of methods/models of analysis to ensure accuracy.

6.4 Methods and models for analysis

Just as there are numerous collection methods, there are also many analysis methods available for use during the BI analysis process. The methods/models used during the BI analysis are not necessarily restricted to methods that were designed with intelligence analysis in mind. According to Mignogna (2001:online), many of the analytical methods used for intelligence analysis are 'not indigenous' but have been adopted from a variety of disciplines, including strategic planning, market research, futures research and other social sciences. On the basis of research involving 33 international banking institutions and considering the three types of analysis methods, Ackerman and Wickens (2001:110) compiled a list of typical BI analysis methods, which include the following:

Quantitative Analysis Methods	Hybrids	Qualitative Analysis Methods
Cross-tabulation Multi-dimensional Modelling Decision Tree Induction Multiple regression Association/Affinity Modelling Neural Networking	Visualisation Scenario Development	Hypothesis Generation & Testing Key Variable analysis SWOT analysis Value Chain analysis Porter's 5 Forces War Games Benchmarking Two-Dimensional Tables Contextual Analysis Network Analysis Time-line Analysis

Table 6.2 Analysis methods/models used by financial services institutions (Ackerman and Wickens, 2001:110)

With reference to intelligence analysis in financial services institutions, Ackerman and Wickens (2001:108) state that 'intelligence analysis methods are as a rule human intensive and more inclined towards the qualitative spectrum of analysis methods than is typically the case with the methods used by analysts that are involved in information analytics'. In the case of information analytics, where information summarisation is an important activity, analysts tend to rely mainly on quantitative methods such as statistical analysis and data mining techniques. As opposed to this, intelligence analysis is more than just the summarising or synthesising of information, and includes interpretations, predictions, judgements and conclusions, which require the application of that qualitative analysis methods.

Because BI assignments often revolve around business problems that deal with external events and the activities of competitors and/or customers, the

researcher believes that BI staff should ensure that quantitative, hybrid and qualitative analysis methods should be considered during the analysis stage. When attempting to gain insight into competitor/customer motivation, attitudes, decisions and behaviour, qualitative and hybrid methods would be more appropriate. Quantitative methods would, for instance, be more appropriate when doing financial predictions and determine potential trends. Ultimately the key for BI analysts is to use a combination of methods that will provide accurate and actionable BI output once the analysis process is completed.

6.4.1 Qualitative methods

Various qualitative methods for BI may be considered by analysts during the analysis stage of the BI process. Some of these will be discussed in the following paragraphs.

6.4.1.1 Hypothesis generation

This method is widely used by professional intelligence services and is well suited to the conduct of BI. The generation and evaluation of hypotheses are key steps in the analytical process used by the Central Intelligence Agency (CIA). Typically, BI analysts should consider generating hypotheses during the BI requirements definition process in order to direct the collection process to collect information specifically related to the evaluation of these hypotheses. In the researcher's experience, hypotheses are often generated during the analysis stage of the BI process, and not during the requirements definition stage. This often leads to a situation where additional requirements for the collection of information are determined during the analysis process in order to evaluate the hypotheses. Usually the process followed for hypothesis generation requires the analyst to see an existing situation as unique and to try to understand it without

making references to other similar situations. This is extremely difficult for analysts to do and, according to the Center for the Study of Intelligence (1999), it is advisable that hypothesis generation be done in teams using brainstorming techniques and, if possible, external parties to contribute to the process. The key is to challenge hypotheses rather than to accept them at face value. Davis (1999:online) states that that the 'Analysis of Competing Hypothesis' concept, developed by Heuer, provides a methodology to rigorously test/challenge those hypotheses that are deemed to be the most plausible with available information. Heuer developed this methodology in order to assist intelligence analysts of the CIA to challenge and revise the mental models that are applied during the analytical process. Building on the research done by the CIA, Ackerman and Wickens (2001:111) developed a checklist for testing hypotheses, which could be used by banking institutions:

Hypothesis Status	Advice	Risk
Plausible but unproven	Do not reject to early and look for additional information	May be discarded if no information to prove the hypothesis is found. Having no information currently available does not imply that there is no information available to prove or disprove the hypothesis.
Plausible but proven	Beware not to test –what are the assumptions?	If a hypothesis is easily proven the risk is that other hypothesis may be discarded and not further developed.
Not Plausible	Why is this not plausible? Because we have no information? It may be a gap in our available information	May be discarded without having established factual basis for reasoning.

Table 6.3 Hypothesis testing checklist (Ackerman and Wickens, 2001:111)

6.4.1.2 SWOT analysis

This analysis method is not only useful when analysing an organisation's internal strengths and weaknesses. As pointed out by Johnson and Scholes (1988:79), SWOT analysis provides 'a mechanism for systematically thinking through the extent to which the organisation can cope with its environment'. From a BI analysis perspective, this model could be applied to competitor organisations as well as customer organisations in order to determine how they cope with the business environment in which they operate. Based on this, BI staff can develop scenarios and attempt to predict the future strategy of banking competitors. This analysis method consists of four components. The first two components deal with strengths and weaknesses that must be identified and related to the organisation, competitors or customers. The other two components relate to threats and opportunities. As Sandman (cited in Miller,2000:90) points out, 'many people assume the opportunities and threats refer only to the opportunities and threats facing the company in question. But you must look beyond an individual company...' One way of dealing with this is to refer to market opportunities and market threats. By identifying these the results of this analysis is typically mapped on a matrix as depicted below.

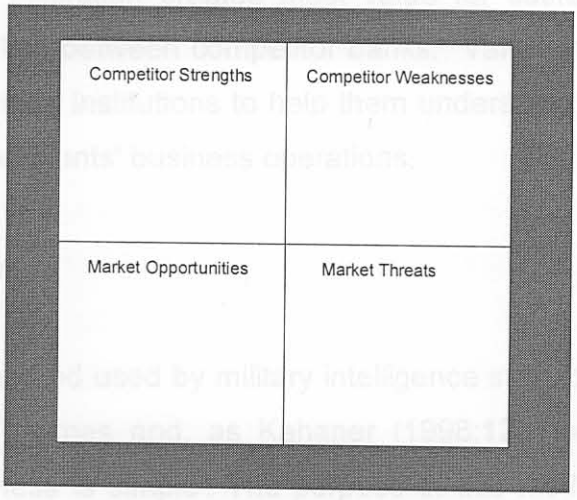


Figure 6.1 SWOT Analysis (Sandman cited in Miller, 2000:90)

Once the matrix has been completed, analysts need to determine which strategic options they expect the competitor or customer organisation would follow, given the picture they have at their disposal.

6.4.1.3 Value chain analysis

Originally this analysis method was introduced to analyse all the activities within a company and to determine the value added by primary and secondary activities. Sandman (cited in Miller, 2000:92) points out that value chain analysis 'becomes a useful tool for intelligence when you are comparing two competitors'. This is confirmed by Powell (2001:online) when he states that 'each activity in the value chain is a potential source of competitive advantage'. By understanding which activities in a value chain generate the most value for a competitor and which generate the least, analysts can determine where competitors would try to improve efficiency and where they would be vulnerable if attacked. From a banking perspective, value-chain analysis can be used for both customer and competitor intelligence purposes by determining which activity in the value chain of the banking institution creates most value for customers, and by doing a comparison on this between competitor banks. Value-chain analysis could also be used by banking institutions to help them understand where value is created in their corporate clients' business operations.

6.4.1.4 War Games

A well-known method used by military intelligence staff to assist with intelligence analysis is war games and, as Kahaner (1998:126) points out, 'the concept applied to business is simple'. The purpose of this method is to use groups of staff members to act out a war game and analyse the results. Typically, one

group would need to play/act the role of the competitor/customer and another group would act out their role as employees of the organisation having to deal with the competitor/customer. The number of groups can be expanded to include other role players such as regulating bodies, suppliers, etc. Kahaner (1998:126) also mentions that, during the course of the war-game, strategies and plans should be proposed and acted out, taking cognisance of the actual business environment, in order to make it as realistic as possible. The value of this method is to a large degree determined by participating staff members' in-depth knowledge of the methods, tactics and doctrine of the competition/customer, and in particular their knowledge of key senior staff members in competitive companies. The potential value of this method for SA banking institutions must not be underestimated as ex staff members from competitors could be well positioned to act out various scenarios as competitors, to which business leaders need to respond by making decisions and developing plans. The benefit of the method is that it can be used to test hypotheses and assist in the development of scenarios.

6.4.1.5 Network analysis

This is a useful method that assists analysts to identify and link various names and relationships in order to identify links in a network. Banking institutions can apply this method to identify and visualise customers' relationships with other market players such as competitors. This method can also be effectively applied to identify competitors' networks with suppliers and partners. To facilitate the use of this method, specific network analysis tools are commercially available to assist with determining relationships and graphically displaying the networks, but not to interpret the networks.

6.4.1.6 The Five Forces Model

This model, originally developed by Porter, is often used by BI analysts to analyse the competitive environment in a particular industry or market. According to Johnson and Scholes (1988:62), the Five Forces Model is 'essentially a structured means of examining the competitive environment of an organisation so as to provide a clear understanding of the forces at work'. In this model, a distinction is made between five competitive forces that influence the competitive environment in which an organisation conducts business. These forces are the power of customers, the power of suppliers, the threat of new entrants, the threat of substitutes and the existing competition amongst the key players in the market. This model can be depicted as follows:

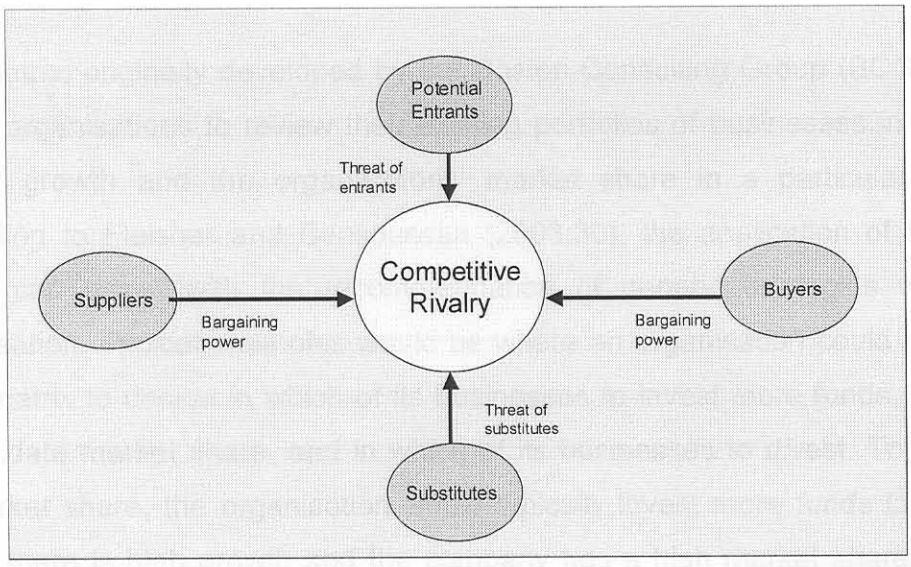


Figure 6.2 The five forces model (Johnson and Scholes, 1988:63)

Sandman (cited in Miller, 2000:72) points out that 'by understanding the relative importance of each of these forces, one can predict how the industry will work and how competitors will interact with each other'. Ultimately, all the competitors

have to deal with all these forces and take appropriate action, which, as Sandman points out, is the key lesson, namely 'that competitors do more than respond to each other'. This model could also be used to perceive the competitive environment from the perspective of existing and emerging competitors, customers and suppliers. In this regard, BI analysts should analyse how a competitor or customer would apply this model. This model is useful in a banking environment, not only for competitor analysis, but also to promote an understanding of the competitive forces that corporate customers have to deal with in running their business operations, which in turn can provide insight and identify opportunities for the banking institution to provide products to these clients.

6.4.1.7 Growth-share matrix

This matrix, originally developed by the Boston Consulting Group (BCG matrix), allows organisations to review their existing portfolios of businesses in terms of market growth and the organisations' market share in a particular market. According to Fleisher and Bensoussan (2003:30), the application of the BCG matrix can assist with the recommendation of generic strategies within an organisation. Typical examples would be where an organisation could apply the BCG matrix to decide in which of its businesses to invest more funds, where to consolidate market share, and in which of its businesses to divest. To increase its market share, the organisation would typically invest more funds in markets where there is high growth and the company has a high market share. Powell (2001:online) points out that this model can also be used to identify business sectors in which it would be advisable to make new acquisitions. Sandman (cited in Miller 2000:74) states that this model is especially useful for analysing multi-unit companies and product companies, but that it could also be applied to services businesses. The BCG matrix can be depicted as follows:

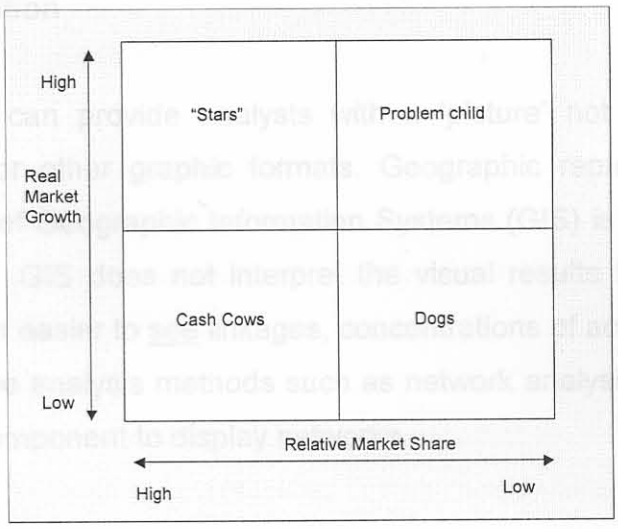


Figure 6.3 The BCG Matrix (Fleisher and Bensoussan, 2003:34)

This model can be used to good effect for BI analysis, especially when analysing competitors. By collecting information on the market growth and market share of competitors, this BCG matrix can be completed with competitors' information and BI analysts can determine in which businesses the competitors are likely to invest, and where they would typically aim to consolidate. This model can be applied to SA banking institutions, especially when taking a product view of a bank. In this regard the market attractiveness of typical banking products (e.g. deposits, mortgage loans, credit cards, etc.) and the market share of competitors in each of these products can be mapped on the matrix.

6.4.2 Hybrid analysis methods

The importance of hybrid analysis methods should not be discounted during the analysis process. Two of the hybrid methods that warrant further discussion are visualisation and scenarios.

6.4.2.1 Visualisation

These methods can provide analysts with a 'picture' not envisaged by just looking at text or other graphic formats. Geographic representation of facts through the use of Geographic Information Systems (GIS) is a good example of such a method. GIS does not interpret the visual results for the analyst, but makes it so much easier to see linkages, concentrations of activities, or emerging trends. Qualitative analysis methods such as network analysis also make use of a visualization component to display networks.

6.4.2.2 Scenarios

Another common hybrid analysis method used for intelligence purposes is scenarios development. Herring (cited in Sigurdson and Tagerud,1992:172) states that 'the use of scenarios is probably one of the most effective means of analytically describing an intelligence future'. In intelligence production, scenarios are typically used to describe a future situation and how an organisation may get to that envisaged future. In order to use this method properly, BI staff should not merely focus on extrapolating the present to the future. Herring (cited in Sigurdson and Tagerud,1992:172) suggests that three steps should be followed. First, scenarios should be used to describe 'a plausible evolution of current events and trends' that does not reflect a future situation differently on the basis of the extrapolation of past events. Once this has been done, a set of future possibilities should be developed using projections of important trends and events. The third step is to describe relevant future situations in relation to the organisation and its strategies in specific terms. In this regard analysts typically identify the 'best case/worst case' scenarios or those that are most or least likely to occur. The use of scenario development in conjunction with hypothesis

development and testing is a very powerful combination of analysis methods in the hands of skilled analysts.

6.4.3 Quantitative analysis methods

As was pointed out in the introduction to paragraph 6.4, quantitative analysis methods/models should preferably be used in combination with qualitative methods/model mainly, because of the typical nature of BI requirements. In the researcher's experience, the use of quantitative methods is often overemphasised in banking institutions, mainly because of huge investments made in IT to manipulate and analyse huge amounts of internal transactional data. Typically these analytical methods are used to generate management information reports and 'analytics'. One quantitative method used for intelligence analysis is mathematical trend analysis. According to Herring (cited in Sigurdson and Tagerud,1992:173), mathematical trend analysis is 'one of the most used of all forecasting techniques in intelligence production'. He also adds that trend analysis that combines both quantitative and qualitative methods is 'one of the most effective forecasting methodologies' when dealing with future-oriented intelligence. This method starts with using standard mathematical-based methods to project historical trends into the future. In addition to this, the qualitative judgements of experts are obtained and factored into the mathematical model to produce 'expected' trends. The historical and expected trends are then graphically presented and the impact of expected trends on existing trends are determined. This result is then used to identify a range of alternative future situations that the organisation would potentially have to deal with.

6.4.4 BI analysis methods used in participating SA banking institutions

During research for this dissertation, BI staff members of participating SA banking institutions were requested to identify the typical BI analysis methods/models used during the BI analysis process. The result of this research can be depicted as follows:

Analysis method	Used by participating SA banking Institutions	Percentage of sample SA banking institutions using the method
Hypothesis generation and testing	✓	100%
SWOT analysis	✓	100%
Value-chain analysis	✓	100%
5 Forces	✓	100%
Key variable analysis		0%
Network analysis	✓	33%
Timeline analysis	✓	33%
Two-dimensional tables	✓	33%
War games	✓	100%
Scenario development	✓	33%
Multi-dimensional modelling	✓	66%
Data mining	✓	100%
Financial ratio analysis		0%

Table 6.4 Analysis methods used by participating SA banking institutions

Although the above table does not indicate the relative importance of the analysis methods, but rather the prevalence of use, it is clear that all the banking institutions that participated in the research make use of hypothesis generation, SWOT analysis, Five Forces and value-chain analysis for BI analysis purposes. One of the banking institutions also makes use of both network and timeline analysis. With regard to war games it was established that two of the banking institutions viewed this methods as an important analysis method, whereas the other participating institution used the method, but did not deem it to be of

particular significance. One of the banking institutions involved envisaged using war-gaming for analysis purposes at business-unit level, with the intention of integrating the output of all the war-gaming exercises at group level. Of interest is the relatively low use of scenario development. Only one of the participating banking institutions indicated that this method was used for BI analysis purposes. This prompts the question whether the other banking institutions use war-gaming as a substitute method for scenario development. The use of data mining and multi-dimensional modelling is prominent, but all the participating banking institutions indicated that the output of these methods was typically used as input for the BI analysis process.

6.5 *A BI analysis process*

According to the Centre for the Study of Intelligence (1999:online), the intelligence analysis process 'is above all a mental process' in which intelligence analysts play a pivotal role.

While conducting the research on which this dissertation is based, the researcher found that although BI staff in participating banking institutions had access to analysis methods/models, and in some cases to specialised intelligence systems, a formal step-by-step BI analysis procedure was not necessarily followed. In one of the banking institutions, senior BI staff confirmed that although a generic analysis process that focussed on the use of specific methods had been designed, the implementation thereof in the various business units proved to be a major challenge, mainly because of a lack of analysis skills. One banking institution also confirmed that the analysis process that was utilised consisted of the application of a number of analysis models in a particular sequence, depending on the BI requirement. Another of the banking institutions

confirmed that extensive use was made of external analysts who apply their own internal analysis processes.

According to the researcher's experience, placing emphasis on a BI analysis process that consists of applying various methods could have disadvantages in that the application of methods become critical to the process. In this regard the researcher would suggest that a seven-step analysis process be considered during which appropriate methods must be identified and applied, and where a specific step is followed to integrate and interpret the results of the application of these methods. This process can be depicted as follows:

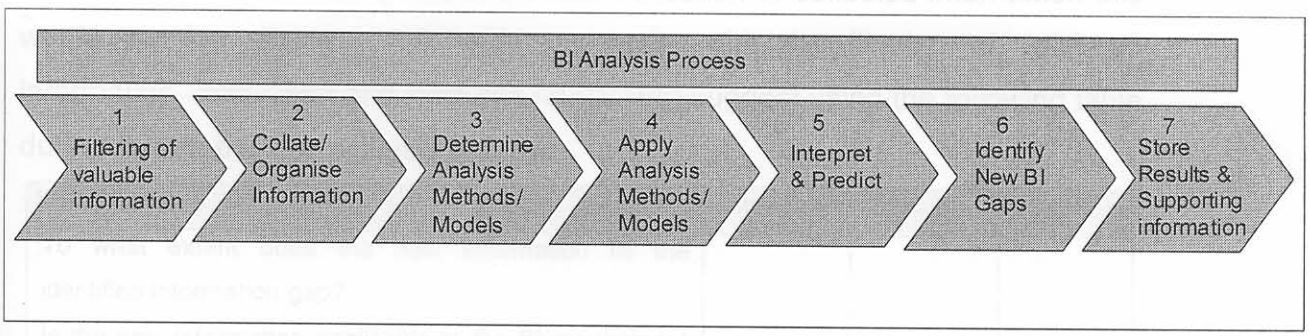


Figure 6.4. A seven-step analysis process

Step 1: Filtering of valuable new information. Typically the first step in an analysis process relates to the filtering and evaluation of collected data, information and knowledge. In order to filter this new information, the intelligence value of the information for analysis purposes needs to be determined. Once this has been done, valuable information needs to be filtered from information that has little or no value for the analysis process. Generally the value for analysis purposes is determined by the accuracy of the information, the relevancy to the intelligence gap/KIT/KIQ, and its timeliness. The purpose of this step is to focus the analysis effort on information that has value in terms of the BI assignment, as it makes little sense to analyse new information that has very little value for the

generation of relevant and actionable BI output. The accuracy of collected information is usually determined during Step 6 of the collection process, when BI sources are evaluated and all newly collected data/information/knowledge is evaluated and validated. In this regard it should be noted that where specialist collection staff members are used during the collection process, these staff members might not necessarily have the in-depth knowledge of a particular topic to validate the information, as does an analyst who specialises in a particular subject area. Therefore it is suggested that BI analysts need to decide whether to review the validation performed during the collection process, or to accept the validation done during the collection process. In cases where BI analysts are involved in the collection process with the validation of collected information this would not be required. In order to assist with the filtering of validated information, Ackerman and Wickens (2001:105) suggest using the following table during this step in the analysis process:

Question	High	Medium	Low
To what extent does the new information fill the identified information gap?			
Is the new information applicable to the BI requirement even though it does not address the information gap?			
Should the new information be disseminated to decision-makers without analysis due to its potential impact or urgency?			
To what extent does the new information link with existing information and intelligence?			
To what extent does new information contradict existing information and intelligence?			
To what extent is new information confirmed by other BI sources (new or existing)?			

Table 6. 5 Filtering of validated information (Ackerman and Wickens, 2001:105)

Step 2: Collate information. Being able to integrate and compare all the BI information (new and existing information) at the disposal of the BI analyst is crucial for the analysis and synthesis of information. In this regard, IT can assist in collating information. McGonagle and Vella (1993:184) refer to this as 'organizing the data'. One way of collating information is to standardise or integrate information from disparate sources and in a single format (e,g. electronic media or paper reports). Working with information in various media complicates the process of collation and the ability of BI analysts to identify linkages and determine trends between pieces of information. In essence this fragments the analysis process to some degree and it is up to the analyst to integrate the various pieces of information. It may not be feasible sacrifice time or budgetary constraints to develop an integrated analysis environment that caters for the transformation and storage of all types of BI information input.

Step 3: Determine analysis method/model: Determining the best combination of methods/models to use for analysis constitutes another integral part of the analysis process. Powell (2001:online) points to the importance of using several methods when he states that 'any given business situation often demands the use of more than one technique...it may even be appropriate to use competing techniques as checks against each other'. There are a number of factors that should be considered when making a choice between various methods for BI analysis. One of the most important factors to consider relates to the particular intelligence output required from the analysis process. In this regard, BI analysts may refer to the verified BI requirement (Step 4 of the BI requirements definition process as discussed in Chapter 4). As was pointed out in the discussion on methods/models, some methods are more appropriate for specific types of BI requirements.

In addition to this, the choice of an analysis method/model could also be determined by the following:

- Time constraints – some methods require more time than others to apply properly.
- Availability of skills – although methods may be available for use by analysts, some methods could require special training/skills.
- Types and format of the information at the disposal of the analyst - typically data-mining methods will not be feasible in cases where the BI information is not in electronic format and/or structured.
- The availability of various analysis methods and their supporting technology – some methods require IT support and analysis tools without which the method may not be feasible.

One important issue to take note of regarding this step relates to whether a method for analysis should be chosen before information is collected or thereafter. Powell (2001:online) argues that analysis methods must be determined before embarking on the collecting stage in order to ensure the compatability of the information collected and the chosen method and associated IT 'tools'. From the researcher's perspective, this should preferably not be done because the danger exists that the collection effort may be directed by the choice of analysis method and not by the BI gap, as determined during the BI requirements definition process. Based on the researcher's experience, it is best to determine the most appropriate analysis methods once all the relevant BI information has been collected and evaluated. As noted by Sandman (cited in Miller 2000:69), choosing the right method/model to apply does not guarantee that the analyst will be able to generate actionable intelligence output.

Step 4: Application of analysis methods. In this step the chosen analysis methods are applied to the relevant and evaluated information. In this regard, both the newly collected information and already existing information should be used as input. According to Webster (cited in Powell, 2001:online), analysis, in essence, deals with 'the separation of a whole into its components parts'. Some of the analysis methods/models also allow for the synthesis of the information, which is the opposite of analysis. According to Webster (cited in Powell, 2001:online) synthesis is 'the combination of parts so as to form a whole'. The methods described in paragraph 6.4 can also assist with synthesis. When the Five Forces model is used, for example, existing and new information regarding the competitive environment is analysed in order to populate the model. Once all relevant information has been depicted in the model, it assists the analysts to create an 'intelligence picture' of the competitive environment, which is in fact the synthesis of the information. In using methods, BI analysts should know exactly how to apply the chosen methods and what the limitations of each of these are. Care should be taken that BI analysts do not become too dependent on the use of specific methods for the analysis of information. A method in itself does not guarantee that BI analysts will be able to create an accurate intelligence picture. As Sandman (cited in Miller 2000:69) points out, these methods/models require the relevant inputs in order to achieve accurate intelligence outputs. Sandman also emphasise a critical issue, which is that analytical methods and models are 'not substitutes for diligence, skilled data collection and an open, inquiring mind'.

Step 5: Interpretation of the results of analysis. In the researcher's experience, BI analysts often believe that once the above analysis and synthesis step has been completed, they have intelligence output on which predictions can be based. However, this is not the case, mainly because the results obtained from the application of the analysis methods/models need to be integrated and

interpreted in the context of the KITs and KIQs, and the BI requirement. The purpose of the interpretation step is to interpret and reach conclusions.

Guidelines provided by McGonagle and Vella (1993:193) to assist BI analysts to complete this step include the following:

- **Noting patterns**. According to McGonagle and Vella (1993:193), pattern recognition 'is critical'. In some cases there are 'direct indications' that allow for pattern recognition. An example of this would be where a banking institution increases its marketing effort for a particular market/product, and through analysts applying a different set of information in the BCG matrix, the particular market/product was identified as a 'star' for the institution. Visualization can also assist BI analysts with noting patterns. The network analysis method is a typical example of how information is visually presented in order for analysts to note patterns. Although pattern recognition is important, McGonagle and Vella (1993:193) also note that BI staff should determine the significance of patterns within the context of the KIT/KIQs of BI requirements.

- **Omissions and displacement**. The identification of omissions can also assist BI analysts during the interpretation step. McGonagle and Vella (1993:194) state that 'the absence of something expected may be an important fact'. When analysts have completed the previous step in this process and find that there are some parts of the intelligence picture missing, this should prompt them to do further analysis to determine the reason for the omission. A typical example in a banking environment could be where a bank's marketing message does not give the same prominence to the marketing of a particular product or to a particular segment (e.g. the people used in advertisements for a product do not

include males). This omission could have various meanings, ranging from the perception that the banking institution is trying to be target females, the product is not aimed at the male segment, or that the banking institution tries to target a new market segment. In one of the banking institutions that participated in this study, omissions in marketing messages are often used for interpretation purposes. Displacement, which is defined by McGonagle and Vella (1993:194) as 'facts or operations that should be there but are not', also provides an indication for analysts to do further analysis and try to establish a reason for the displacement. The fact that a competing banking institution is not as prominent in terms of marketing its products as it used to be in the past can be ascribed to a number of reasons ranging from complacency to financial pressure that prevents the spending of funds on marketing.

- **Drawing inferences**. In order to assist BI analysts to reach conclusions, McGonagle and Vella (1993:195) suggest that drawing inferences should be considered. This involves using both the logic and experience of the analyst in an inductive reasoning process. According to McGonagle and Vella (1993:196), when applying inductive reasoning, 'you contend that the premises you use give some support for your conclusion', whereas with deductive reasoning an analyst would contend that if the premises are correct, the conclusion must be accurate. Analysts should realise that this process may cause them to fit incoming information into pre-existing beliefs or perceptions. This issue will be discussed in the following section dealing with the role of humans in the analysis process.

Checking for anomalies. McGonagle and Vella (1993:196) define anomalies as 'data that does not fit; usually an indication that one's working assumptions are wrong or that an unknown factor is affecting

results'. The key for BI analysts when identifying an anomaly after completing Step 4 of this process, is to first verify the accuracy of the information they received. Once accuracy has been verified, analysts should determine why this information does not fit within their existing intelligence picture. Analysts should also ensure that they are not dealing with disinformation, which McGonagle and Vella (1993:188) define as 'something that looks like information but is not information. It is designed to mislead others'.

- **Drawing conclusions**. In order to complete the interpretation steps, BI analysts need to pass judgements, draw conclusions and make predictions (if required). Once this has been completed, BI analysts have generated intelligence. The drawing of conclusions requires good judgement and knowledge on the part of the analyst. Judgement requires that analysts move beyond the intelligence picture that is revealed by the facts at their disposal, towards making conclusions based what they know and what they think. In this regard, Ackerman and Wickens (2001:107) suggest that BI analysts should consider asking themselves five key questions:
  - What does the BI picture convey (meaning) once new information has been integrated?
  - What could/will probably change?
  - Why does the analyst regard this as a true reflection of the BI picture?
  - So what?
  - How can this interpretation add value to the intelligence user and address the BI requirement?

Step 6: Identification of new BI gaps. It is not uncommon for BI analysts to identify a need for additional information when they are in the process of

applying analysis methods and executing the interpretation step of this process. Should the information required not be found within the existing intelligence storage system, the BI collection process should be triggered with this new BI gap, typically starting with Step 3 of the collection process (refer to paragraph 5.6.2). As the BI gap is usually very well defined and specific at this stage of the BI process, it typically does not require the first two steps of the collection process to be completed.

Step 7: Storage of intelligence and supporting information. The final step in this process involves the storage of the intelligence generated and the supporting information. This is an important step because analysts would need access to this during the dissemination stage of the BI process. It is suggested that all the evaluated information used to populate analysis models and the results of these methods/models be stored in an intelligence storage/retrieval system, preferably an intelligence database. Furthermore, the intelligence conclusions reached and the basis for these conclusions should also be documented and stored in this database. Based on the researcher's experience in this particular field, it is suggested that such an intelligence database should consist of various levels, which could be depicted as follows:

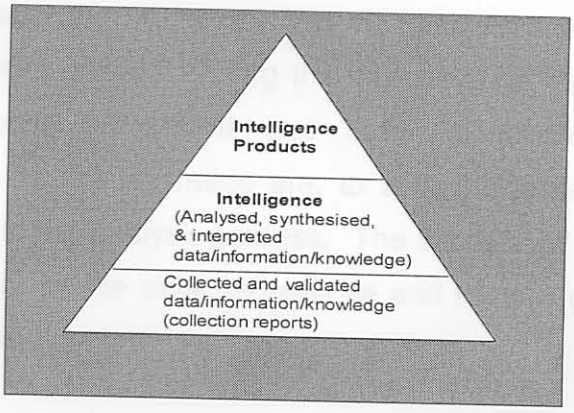


Figure 6.5. Suggested levels of an intelligence database

Once the validation step of the collection process has been completed, all data/information/knowledge collected for addressing a BI requirement should be stored in the database. The analyst should then be able to access this newly collected information, as well as relevant information already in existence within the organisation, and use this as input to populate and apply the analysis methods/models chosen for use during the BI assignment. These populated models and the results should then be stored. Finally, the output of the interpretation step is also stored. During the dissemination stage of the BI process, analysts will be able to retrieve the intelligence in order to generate BI products, which are typically stored separately for use by both BI staff and intelligence users (see Chapter 7 on dissemination of BI products).

6.6 The role of the analyst in the analysis process

According to Ackerman and Wickens (2001:114) the BI analysis process is more human intensive than is usually recognised. In this regard it should be noted that when quantitative analysis methods are used, some level of human input and manipulation is required. As was pointed out in the Step 3 of the analysis process, the choice of analysis methods relies on the judgement of the BI staff involved. When applying methods (Step 4), analysts need to ensure that the methods are properly applied. During the interpretation step, analysts are also responsible to pass judgement and reach conclusions. Ultimately the interpretation and predictions made are, to a high degree, dependent on the analyst/s involved in the analysis process. The success of the analysis process is largely dependent on the skills, experience and knowledge of the BI analysts involved in the BI assignment.

Due to fact that the analysis process is a human-intensive process executed by BI analysts, it is important that the impact of this 'human element' on the analysis

process is determined and understood. Understanding the psychology of intelligence analysis and the implications thereof for the analysis process is something that BI managers and intelligence users should be aware of. Being human allows analysts to interpret and understand the behaviour and activities of humans better than a machine could, but as humans, analysts could have inherent difficulties with regard to facing various challenges, such as the following:

6.6.1 Mental processes of analysts

Typically, intelligence analysts could experience inherent difficulties when faced with the processing of complex information. The manner in which analysts create 'intelligence' pictures, is determined by the metal processes of the analyst. This in turn is influenced by past experience, education, upbringing, social and cultural values and the filtering of the information provided. Heuer (cited in Davis, 1999:online), points out that 'analysts should be self-conscious about their reasoning processes. They should think about how they make judgements and reach conclusions, not just about the judgements and conclusions themselves'. In this regard the Center for the Study of Intelligence (1999:online) proposes that intelligence analysts should spent more time in training on thinking and reasoning processes. Furthermore, it is also emphasised that analysts should be more exposed to different mind-sets and cultures to provide new experience and knowledge.

6.6.2 Disinformation

Ackerman and Wickens point out that intelligence organisations have found that analysts often reject the possibility of deception because they have no information to the contrary. McGonagle and Vella (1993:188) confirm that

although disinformation in the business world is not 'as expansive as it is in politics and espionage', analysts need to be aware of the fact that it does exist and might have to be dealt with in the BI process.

6.6.3 Challenges during the analysis process

In addition to the above, analysts typically also have to deal with a number of challenges during the analysis process. Very often pressure is put to bear from intelligence users on analysts to complete the BI process in order for users to address the business issue/problem at hand. Procyshyn (2001:online) refers to the 'political pressure' that analysts could face when intelligence users expect intelligence output that fits well with the views of the intelligence user. Also dealing with this, Procyshyn (2001:online) refers to the challenge for BI analysts not to try to oversimplify the analysis process due to time or budgetary constraints. Analysts seldom have all the relevant information at their disposal, which challenges them to fill the gaps by using their ability to make judgements. Another challenge that analysts have to deal with is the internal pressure created by themselves to prevent analysis failures. Procyshyn (2001:online) confirms that analysts could prefer to 'play it safe', especially during high-profile/high-risk assignments which could see a suppression of the 'real' interpretation of the situation for fear of being responsible for faulty decisions.

6.6.4 Preferences of analysts

Procyshyn (2001:online) refers to the phenomenon of subjectivity when dealing with intelligence analysis and points out that when analysts are confronted with an incomplete intelligence picture, 'clouded situations can be clarified with circumstantial evidence or plausible rationalization and are subject to human bias'. To this one might add that, based on the researcher's experience,

subjectivity/preference often plays a role when BI analysts decide on using/not using specific intelligence analysis methods/models. Typically intelligence analysts show a preference for the use of specific analysis methods, as a result of which the analysis methods might not necessarily be the most appropriate for dealing with BI requirements. A statistician assigned to a BI analysis team will probably favour the use of data-mining tools, whereas a BI analyst with a formal intelligence background will tend to favour qualitative intelligence analysis methods, such as hypothesis generation.

6.7 Guidelines for successful analysis

There is a lot to be learned from professional intelligence organisations when it comes to ensuring that intelligence analysis provides understandable and actionable output of high quality. In this regard, the CIA's Centre for the Study of Intelligence (1999) has done research to address the factors that have had a negative impact on the quality of analysis in the past and have devised methods to improve their intelligence analysis capability. This research provided guidelines for executing the BI analysis stage that could also be used by banking institutions. Some of these guidelines are briefly described in the following paragraphs.

6.7.1 Prevent the mixing of interpretation with facts

During the analysis process, it is critical for analysts to draw clear distinctions between facts, assumptions, deductions and conclusions. Failing to do this could result in the interpretation of analysts being considered as fact by intelligence users. It is also important that all the underlying information used during this process should be available, should other analysts or intelligence users require the BI analyst to explained the process, models, information and reasoning used during the analysis process.

6.7.2 Impact of information input

Inaccurate, incomplete and out-dated information will have an adverse effect of the quality of the intelligence analysis process, as well as on the output generated. Having access to analysis methods/models and skilled BI analysts does not imply that miracles can be performed with low-quality information input. On the other hand, it is also important to note that having high-quality information as input to the analysis process does not guarantee the quality of the analysis process either. This is typically the case when using inappropriate analysis methods or inexperienced BI analysts who are unable to correctly interpret the results of the analysis methods applied.

6.7.3 Challenging interpretation

Even the most plausible hypothesis or confirmed results obtained from a number of different analysis methods should be open to challenge. It is not uncommon to find that even good analysts show weakness of analysing in order to confirm existing assertions or theorems. One way of dealing with this is to ensure that BI analysts challenge the analysis and interpretation of their fellow analysts. The Centre for the Study of Intelligence (1999) emphasises that all analysis should be reviewed before it is disseminated to intelligence users. The Centre for the Study of Intelligence (1999) has also recommended the formation of a corps of retired executives from the CIA so that their skills and experience can be imparted to junior analysts as part of a mentoring programme.

6.7.4 Obtain expert advice

In the course of their careers, BI analysts would typically have to deal with many different types of BI requirements, and through experience they will develop expertise in specific areas/topics. Although specialisation is encouraged in the CIA, there is also a danger in that the organisation might develop internal experts that become so involved in the their areas of expertise that they could lose sight of other important issues. Consulting with external experts, especially when having to make significant judgements, is recommended by the Centre for the Study of Intelligence (1999), especially after having fallen victim to the so called 'everybody-thinks-likes-us mindset'. Ackerman and Wickens (2001:117) state that it becomes important to obtain input from other experts, especially when 'analysts think they do know everything there is to know about the subject, and when they are not open for the advice and input from external experts'.

6.7.5 Balance between qualitative and qualitative analysis methods

Especially when it comes to gaining insight into **why** competitors/customers do the things they do and what they plan to do next, the role of quantitative methods have limitations. Through experience, the researcher has learned that qualitative analysis methods work better on the soft issues of competitor/customer behaviour, attitudes, motivation, decision-making and preferences. The same applies to quantitative methods when there is a need to analyse **what** competitors/customers did in the past.

6.7.6 Focus on addressing the BI requirement

The analysis process should remain focussed on addressing the BI requirement. The possibility exists that interesting or unique new information obtained during the collection process could prompt analysts to divert some attention to peripheral issues. For the BI analysis process to be effective, the focus must remain on addressing the KITs/KIQs, and ultimately the business issue/problem that gave rise to the BI requirement.

6.8 Conclusion

The analysis process of the BI process revolves around the generation of intelligence from various pieces of information collected, often from disparate sources and often with contradictory content. The importance of this stage of the BI process cannot be overemphasised, especially since this stage can reduce the flow of information or the number of input variables to the intelligence user by providing analysed, integrated and interpreted intelligence output within the context of the defined BI requirement.

Although there are various approaches to consider when attempting the analysis stage of the BI process, and numerous methods and models available to assist BI analysts to deal with this stage, these do not guarantee that information will be turned into intelligence. Of critical importance is that BI analysts follow a step-by-step process that places particular emphasis on the interpretation of the information that was analysed and synthesised.

Ultimately it is the BI analyst that plays a pivotal role in ensuring that quality intelligence is generated during this process, and even though technological advances may create the impression that the analysis, synthesis and interpretation steps could be automated with IT, the future of the BI analyst is

secure. As Kent (cited in Davis, 2001:online) remarked, 'Whatever the complexities of the puzzles we strive to solve and whatever the sophisticated techniques we may use to collect the pieces to store them, there can never be a time when the thoughtful man can be supplanted as the intelligence device supreme'.

CHAPTER 7: Disseminating Business Intelligence products

'Intelligence departments can produce great intelligence, but management has to understand and appreciate it or it will not be used'.[6]

7.1 Introduction

Once data, information and knowledge have been turned into intelligence during the analysis and synthesis stage of the BI process, this intelligence output needs to be disseminated to intelligence users in order to complete the BI process. Kahaner (1998:132) refers to the dissemination stage as the 'moment of truth'.

The purpose of the dissemination stage of the BI process is to provide the right intelligence product to the right person in the correct format exactly when and where it is required.

In essence the dissemination stage can be described as consisting of two processes. The first process aims to add value to the output of the analysis and synthesis stage of the BI process by doing further synthesis and packaging the intelligence in an intelligence product format. The second process involves communicating the intelligence product to intelligence users.

The aim of this chapter is to:

- Review existing literature on the formats and methods used for the dissemination of BI products
- Refer to the BI dissemination formats and methods used by SA banking institutions and to propose a BI dissemination process that could be applied within a banking institution

[6] J. Herring (cited in Sigurdson, J.S. and Tagerud Y, 2001:167)

Although BI dissemination is extensively discussed in BI literature, on closer analysis writers seem to emphasise the methods and formats to be used for disseminating intelligence and not the process required for executing the dissemination stage. By considering the results from research done with SA banking institutions on the topic, as well as some research on BI dissemination practices used by international financial institutions, the researcher proposes a step-by-step dissemination process in this chapter.

In this chapter, the importance of the dissemination stage within the context of the BI process is briefly discussed before of a number of approaches that BI staff might consider for the dissemination of BI products are reviewed. Various dissemination methods and formats available for BI dissemination are discussed in two sections before a step-by-step dissemination process is described. In the final section of this chapter, brief guidelines are given for successful dissemination.

7.2 The importance of the dissemination stage

As the last stage of many BI processes, dissemination is not less important than the preceding analysis and synthesis stage. Dissemination could be considered one of the most important stages, as Kahaner (1998:132) points out when he says that 'this is when you give management answers to their questions'.

Typically, BI analysts place a lot of emphasis on turning disparate and often contradictory pieces of information into meaningful intelligence during the analysis and synthesis stage of the BI process. Often not enough emphasis is placed on the proper dissemination of the intelligence, as is confirmed by Kahaner (1998:132) when he refers to the dissemination stage as 'also a time when most competitive intelligence projects fail'. BI analysts need to ensure that

they effectively communicate the insight gained from the analysis and synthesis stage and be able to make recommendations to intelligence users. Herring (1992:163) maintains that 'it is not sufficient to merely produce business intelligence in a clear, concise and credible form: for intelligence to be truly actionable, it must be communicated in such a manner as to cause those in position of responsibility to act upon it'.

If the dissemination of BI products is not effectively executed, it could be argued that the value of the whole BI process would be negatively impacted. The importance of proper dissemination is highlighted by writers such as McGonagle and Vella (1993:290), when they refer to intelligence products as follows: 'to be used it must be given to those who need it, in a suitable format, and in a timely manner'. Tyson (cited in Bernhardt, 1993:101) echoes Kahaner's views when he states, 'packaging of intelligence can many times make or break a key strategic or tactical decision. As such, we can never assume that good analysis stands on its own'.

Apart from ensuring that BI products are effectively communicated, the importance of having a quality assurance component in a dissemination process also needs to be emphasised. Quality assurance is critical, because of the fact that BI products could have a direct influence on decisions made and the resulting actions that are taken by intelligence users. Ackerman and Wickens (2001:124) confirm this when they say, 'the better the quality of the intelligence products, the better the chances of making sound decisions and taking appropriate action'.

7.3 Approaches for intelligence dissemination

Given the importance of the BI dissemination stage, it is advisable not to approach this stage in an ad hoc manner. In this regard a number of BI

dissemination approaches should be considered. Some of the typical BI dissemination approaches include the 'push/pull' approach, predetermined BI programmes and product hierarchies. Each of these approaches will be discussed in the following paragraphs.

7.3.1. The 'push/pull' approach

As in the case with the proactive and reactive approaches for BI requirements definition (as discussed in paragraph 4.4.1 and 4.4.2), during the dissemination stage, BI staff members have the option of taking the initiative to disseminate BI products to intelligence users (push) and/or to allow intelligence users to access the required BI products when they need it (pull). Generally, in cases where intelligence users have defined specific requirements for BI products, intelligence users would expect the BI products to be disseminated (pushed) to them. The same applies to a situation where intelligence users have provided BI staff with topics on which they would like to receive BI products on an ongoing basis, or where intelligence users are put on a distribution list for BI products that are on the BI production schedules. One of the disadvantages of the push approach is that BI staff may disseminate BI products to intelligence users who have no interest in receiving these products. This requires BI staff to obtain feedback from intelligence users as to the utilisation of BI products and to regularly review/update BI distribution lists. One of the advantages of the push approach is that BI staff members remain responsible for ensuring that BI products are disseminated to those intelligence users that have a need for them, and to those who are on a distribution list. The pull approach requires intelligence users to take responsibility for obtaining access to the BI products they require. To some BI staff members this may seem a preferred approach in that they cannot be held responsible for disseminating BI products to intelligence users who have no need for them. The pull approach can also prove to be problematic, especially

when intelligence users cannot find and retrieve the required BI products from a repository/database. With the pull approach, BI staff members also need to ensure that each time a new BI product is available on the database, intelligence users are alerted to this fact and access is monitored. All three banking institutions that participated in this research use a combination of the push and pull approaches. In one banking institution, there is a strong emphasis on limiting the push approach in favour of a pull approach. In these SA banking institutions those BI products that are compiled on a monthly and quarterly basis are typically 'pushed' to intelligence users. The daily/weekly current awareness/intelligence reports are typically stored in an intelligence database or in a knowledgebase, which can be accessed by intelligence users themselves. In order for intelligence users to gain access to BI products, all the participating banking institutions have intelligence/knowledge databases that are accessible through the corporate intranet. Two of the banking institutions have purpose-built intelligence systems to support their intelligence processes. In one of the banks, a process was implemented that alerts intelligence users according to their interest profiles when new BI products are available in order to facilitate a 'pull' approach.

7.3.2 Predetermined BI production schedules

This approach can be directly linked with the approaches discussed in section 4.4, relating to dealing with BI requirements. When dealing with BI requirements that require intelligence products to be disseminated at regular intervals, a predetermined BI schedule should be considered. Once such a BI production schedule has been compiled and agreed on with intelligence users, BI staff members know when to prepare and disseminate BI products to specific intelligence users, and these users know when to expect these products. This approach can also be used when dealing with intelligence for strategic planning

cycles. Once the dates for a strategic planning cycle have been determined, BI staff can plan to deliver strategic assessments and estimates at a particular time as input for these cycles. Although this approach provides structure and assists with planning for BI assignments, it should be noted that requirements for specific BI products might arise which could not be addressed by the predetermined set of scheduled products. In all the SA banking institutions that participated in this research, BI reports/briefings are produced and disseminated using a predefined schedule approach. All these banking institutions acknowledge that predefined scheduled products do not cater for all BI requirements, and that specific BI products are compiled and disseminated in addition to scheduled BI products. Although there are some differences in the types of BI products disseminated in SA banking institutions, the intervals at which BI products are provided correspond. A typical example is that of BI reports/briefings regarding competitor activities and market trends, which are typically disseminated on a monthly and quarterly basis in SA banking institutions.

7.3.3 A hierarchy of intelligence products

Herring (cited in Sigurdson and Tagerud,1992:165) states that 'there is no single intelligence product that fits all needs. There is a hierarchy of intelligence products to be considered'. This 'intelligence hierarchy' approach is also supported by Tyson (cited in Bernhardt,1993:104), who suggests that an intelligence hierarchy is essential for the dissemination of BI products. Typically, such an intelligence hierarchy distinguishes between various types of BI products, with each type suited to different uses. In these hierarchies a distinction can be made between BI reports that are time based (disseminated at specific intervals) and those that are topic orientated. Both Herring and Tyson developed specific intelligence hierarchies and participating SA banking

institutions also make use of intelligence hierarchies. These hierarchies are briefly discussed in the following sections.

7.3.3.1 Herring's intelligence hierarchy

Herring's hierarchy distinguishes between newsletters, intelligence reports, analytical alerts, intelligence assessments and intelligence estimates and can be depicted as follows:

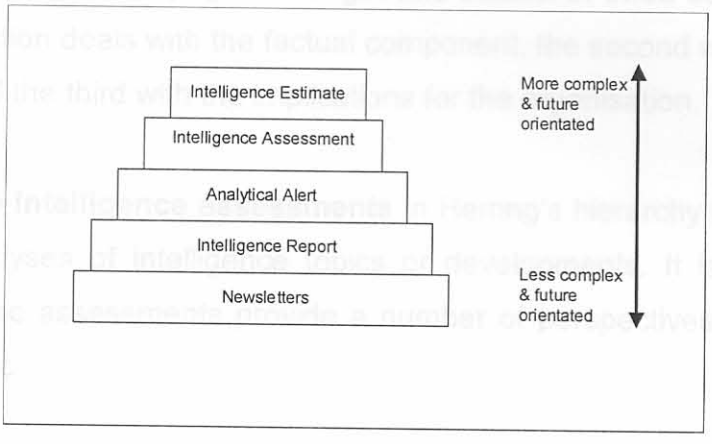


Figure 7.1 Herring's intelligence hierarchy (Herring cited in Sigurdson and Tagerud, 1992:165)

- **Newsletters** are the most basic of the BI products and contain information obtained from various open sources. It should be noted that in terms of the definition of BI as discussed in paragraph 2.7, these newsletters would not be defined as BI products by the researcher.

- The **intelligence reports** referred to by Herring in this hierarchy are concise (typically one page in length) and factual intelligence reports that describe particular events/issues at a particular point in time.

Typically, these reports should include an indication of the impact of the particular event on the organisation. Herring refers to intelligence reports as providing a 'snapshot' or intelligence picture in time.

- The next level in Herring's intelligence hierarchy is the **analytical alert**. These intelligence reports are more comprehensive in nature than the basic intelligence reports. Typically several events/issues are analysed and synthesised. According to Herring, these reports are usually no more than two pages in length and consist of three sections. The first section deals with the factual component, the second with the analysis, and the third with the implications for the organisation.

- The **intelligence assessments** in Herring's hierarchy refer to in-depth analyses of intelligence topics or developments. It is important that these assessments provide a number of perspectives on a particular topic.

- According to Herring, the **intelligence estimate** is the most comprehensive of BI products and is therefore placed at the top of this hierarchy. An estimate involves not only an assessment of a particular topic from various perspectives, but also the assessment of a number of topics/issues with specific emphasis on what to expect in future. Herring (cited in Sigurdson and Tagerud,1992:167) refers to estimates as 'the best way to help management envision the future the company is likely to face'.

- Except for the fact that it includes newsletters as part of the intelligence hierarchy, Herring's model cannot be faulted. It provides for a number of reports, each with a specific purpose, and as BI staff

members move upwards in this dissemination hierarchy the complexity and scope of the BI products increase. Although a future/predictive element can be included in reports at all levels in this hierarchy, it is particularly at the estimate level that much emphasis is placed on this. It should be noted that Herring does not refer to briefings or presentations in his hierarchy, but it is assumed that, depending on the BI requirement, the reports mentioned could be packaged into either intelligence reports or briefings.

7.3.3.2 Tyson's intelligence hierarchy

In Tyson's intelligence hierarchy a distinction is made between intelligence products for tactical and for strategic purposes. These products are also linked to intelligence users operating at tactical and strategic levels within the organisation. Tyson's hierarchy can be depicted as follows:

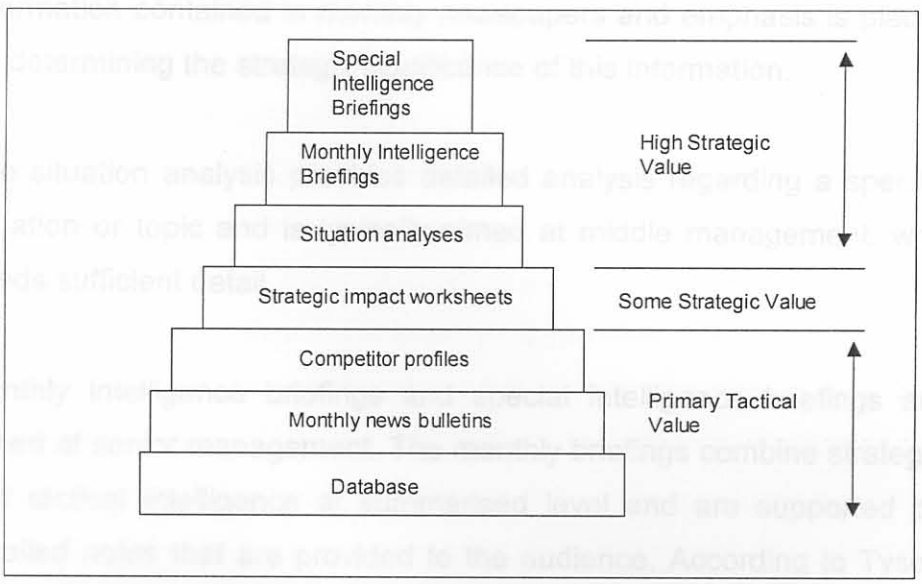


Figure 7.2 Tyson's intelligence hierarchy (cited in Bernhardt, 1993:104)

- At the bottom of this model is a database containing 'raw' information. Tyson call this 'the lowest level'. According to Tyson (cited in Bernhardt,1993:104), the information contained in this database is used to produce monthly news bulletins, which are aimed at staff members that operate at tactical levels in the organisation.

- The second layer consists of intelligence profiles that contain detail and summary information on competitors, customers or markets. These profiles are compiled and updated by using the information contained in the monthly news bulletins.

- According to Tyson (cited in Bernhardt,1993:104) the third layer, consisting of strategic impact worksheets, is the level where 'intelligence begins to be formed' and where 'the product has strategic value' for BI users. The worksheet is compiled by summarising information contained in monthly newspapers and emphasis is placed on determining the strategic significance of this information.

- The situation analysis provides detailed analysis regarding a specific situation or topic and is typically aimed at middle management, who needs sufficient detail.

- Monthly intelligence briefings and special intelligence briefings are aimed at senior management. The monthly briefings combine strategic and tactical intelligence at summarised level and are supported by detailed notes that are provided to the audience. According to Tyson (cited in Bernhardt,1993:107), the special intelligence briefings are brief (1-2 pages) and focus on specific issues.

From the researcher's perspective, an inspection of this model raises a number of concerns:

- **Database**. Firstly, the storage of raw information for BI dissemination purposes should not be encouraged. The emphasis should rather be on storage of relevant data, information and knowledge that have been properly validated during the sixth step of the collection process (as discussed in paragraph 5.6.2). When compiling intelligence products, analysts should preferably not have to start with the validation of the information on the database. A better approach is to have access to a database where validated data/information/knowledge and all previous intelligence products are stored.

- **Monthly news bulletins**. The news bulletin in Tyson's model is an information product and not an intelligence product, and as such should not be included in an intelligence hierarchy. It does not make sense to use BI staff to repackage existing information into a news bulletin format, especially since this could be done by information scientists or library staff. Typically, current awareness bulletins providing information of interest can address this level of the hierarchy. The publication of a monthly product also raises some concerns as intelligence users may not be able to wait for a month to pass before obtaining the information contained in this product. An alternative solution to this is to produce a concise internal intelligence bulletin and distributing it weekly, or at least bi-weekly. In SA banking institutions information products of this type are disseminated weekly or daily to intelligence users.

- In Tyson's (cited in Bernhardt,1993:104) description of the strategic impact worksheet, reference is made to the summarising of information contained in monthly news bulletins before making 'an initial pass at determining the strategic and tactical significance of each item'. As was pointed out in the previous chapter, in order to produce intelligence, a process involving the analysis, synthesis and interpretation of relevant data, information and knowledge is required. It is not clear if the 'initial pass' that Tyson refers to can indeed generate intelligence products that could be disseminated as BI products.

7.3.3.3 Intelligence hierarchies of SA banking institutions

All the SA banking institutions that participated in this research have adopted a BI product hierarchy approach. Some of these hierarchies show a strong resemblance to Herring's hierarchy.

In the case of one of these banks, a five-tiered hierarchy is applied for the dissemination of BI products. This hierarchy can be depicted as follows:

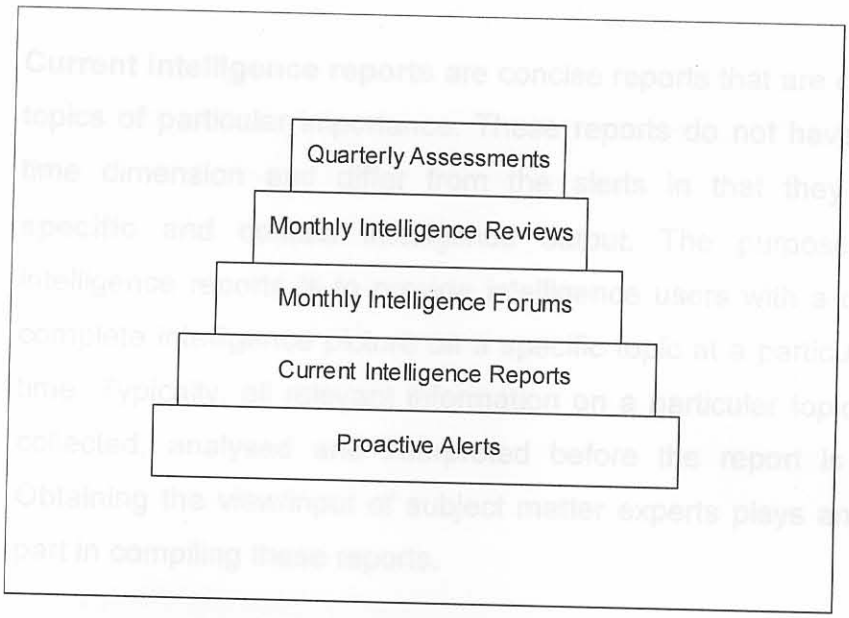


Figure 7.3. Example: Intelligence hierarchy of a SA banking institution

- At the bottom of this hierarchy, **proactive alerts** contain information obtained from the business press that might be of interest to intelligence users. These alerts do not contain intelligence, as is the case with Herring's hierarchy, but contain filtered information and could be compared to a news-clipping service. The purpose of these alerts is to keep the intelligence users informed on key intelligence topics by providing them with a daily flow of information. To compile these alerts, BI staff members scan the business press daily and information is filtered according to the KITs of the organisation and the interest profiles of intelligence users. Relevant articles are then collated in an electronic bulletin. The bulletin is not disseminated, but an abstract is compiled and pushed to the users using electronic mail. Based on the

contents of the abstract, the users can then access (pull) the contents of the 'Alert' from an internal intelligence database.

- **Current intelligence reports** are concise reports that are compiled on topics of particular importance. These reports do not have a specific time dimension and differ from the alerts in that they are **topic specific** and contain intelligence output. The purpose of these intelligence reports is to provide intelligence users with a concise yet complete intelligence picture on a specific topic at a particular point in time. Typically, all relevant information on a particular topic would be collected, analysed and interpreted before the report is compiled. Obtaining the view/input of subject matter experts plays an important part in compiling these reports.

- **Monthly intelligence forums** consisting of representatives of various business units meet monthly to present intelligence products, discuss the main findings of the intelligence products, and exchange ideas. At these meetings further intelligence requirements are also often formulated.

- **Monthly intelligence reviews,** which are linked to the strategic intelligence requirements and other intelligence topics that require a monthly update on the intelligence picture, also form part of this hierarchy. These reviews, published in report format, are not topic specific, but rather provide the intelligence user with an overview of relevant intelligence topics over a period of one month. Relevant topics are analysed throughout the month and at the end of the period intelligence is generated using the information collected on the topic during that month. A typical example would be a monthly intelligence

review covering the main activities of competitor banking institutions during the month, implications for the organisation, and an indication of what could be expected from competitors in the future.

- **Quarterly intelligence reviews/assessments**. These reviews/ assessments are more comprehensive than the monthly reviews, are topic specific, and focus on strategic intelligence requirements and KITs. Monthly intelligence reviews are generally used as input for the production of quarterly intelligence reviews/assessments. It should be noted that all the banking institutions that participated in this research conduct quarterly BI reviews that relate in particular to competitor activities and market trends.

7.4 *Methods for BI dissemination*

When choosing a method for BI dissemination, staff members need to ensure that BI products reach the end users in the most effective manner. In this regard, McGonagle and Vella (1993:290) explain that the need for clarity, accuracy, speed and security should be taken into account when deciding on a method for dissemination. There are a number of BI dissemination methods that could be considered. They include the following:

7.4.1 Providing written/printed reports

Gilad and Gilad (1988:154) refer to printed reports as the 'mainstay of the business intelligence system', and believe that they 'will exist alongside any other dissemination method that may be used'. West (2001:170) confirms that printed reports are still used in a high proportion of companies but, unlike Gilad and Gilad, he maintains that these reports are more likely to be electronically distributed than physically copied. West acknowledges that there is a preference among decision-makers to absorb data off a page rather that to read it on a screen. The preference of intelligence users to read printed reports makes this method of dissemination very effective. One of the advantages of using printed reports is that it allows intelligence users to read and make notes/comments on the pages. It could also be argued that paper reports are more secure than electronic reports in that they cannot be lost in cyberspace or electronically copied. There are, however, also a number of disadvantages in using paper reports. These disadvantages include the time consumed by printing and delivering these reports, especially in cases where the delivery has to be done over some distance. It should be noted that written BI reports could be disseminated not only on paper, but also on computer screens, or as a text message on mobile phones, depending on the preferences of the intelligence user. The researcher agrees with West that BI reports are typically electronically distributed (except in cases where the topic is extremely sensitive in nature) and that on receipt they are printed by the intelligence user for easy reading. In the SA banking institutions that participated in this research, written BI reports, both in printed and electronic form, are widely used as a method for disseminating intelligence.

7.4.2 Verbal reporting

West (2001:171), and also Gilad and Gilad (1988:156), mention the importance of having formalized channels through which verbal intelligence reporting can take place. Kahaner (1999:135) points out that verbal presentations work best when dealing with intelligence users operating at management level. Although BI forums and face-to-face intelligence briefings usually come to mind when referring to verbal reporting, it should be noted that teleconferences and internal company video broadcasts can also be effective. The use of BI forums and BI briefings is discussed in more detail below:

- **BI forums**. Gilad and Gilad (1988:156) suggest the use of forums to discuss intelligence reports. Those attending these forums are presented with intelligence products that are then discussed and, if applicable, additions can be made to the synthesis. It is reasoned that the discussion of intelligence products also acts as a form of dissemination of the intelligence. One of the SA banking institutions that participated in this research uses this dissemination method and has established a monthly BI forum meeting. It should be noted that discussions related to these BI products should be recorded and, if necessary, the products should be updated. In fact, Gilad and Gilad suggest that such a forum discussion be followed up with a 'printed intelligence report'.

- **BI briefings/presentations**. Another typical method used for verbal dissemination is to present intelligence briefings to those intelligence users that required the BI product. This differs from the use of intelligence forums that are typically attended only by BI staff in that these briefings are presented to intelligence users and take note of users' preferences. It is not uncommon to find that written intelligence reports are summarised

and presented in BI briefing format before the more detailed BI report is disseminated. Intelligence briefings/presentations have several advantages, compared to written dissemination, and are often preferred as a method for disseminating intelligence when faced with time constraints. One of the main advantages is that this method provides an opportunity for interaction between the presenter (BI analyst) and the intelligence users. Another major benefit of intelligence briefings is that BI analysts can explain how they analysed and interpreted the information at their disposal. In the researcher's experience, one of the disadvantages of BI briefings is that important information/intelligence exchanged during discussions is often not captured/stored. It is also not uncommon to find that the BI briefings consist of only the visual material, and that the supporting notes/comments are not documented. During BI briefings the analyst presenting the intelligence plays a pivotal role. As Ackerman and Wickens (2001:129) point out, a lot depends on the BI analyst's ability to convey the intelligence in a format that the intelligence users can understand and use. A well-written BI report that is badly presented could result in the value of the BI product being questioned. However, the possibility also exists that an analyst who is good at presenting briefings may be able to 'sell' BI products of low quality. It is also important to note that during intelligence briefings, a situation could arise where the intelligence findings do not correspond with the views of the intelligence users. BI staff should therefore be trained to present their intelligence in a professional manner, regardless of the political climate in the briefing room. In two of the SA banking institutions that participated in this research, BI briefings are widely used, often in conjunction with BI reports, as a method for disseminating intelligence.

7.4.3 Electronic mail

Another typical method used to disseminate BI products is electronic mail. As Hohhof (cited in Miller,2000:137) points out, intelligence products can be disseminated by 'establishing a generic e-mail account and distributing attachments or by uploading intelligence products into an intelligence intranet site'. In order to be able to use this effectively, BI staff should ensure that all the intelligence users have the equipment required to retrieve their 'BI mail'. Typically, e-mail is used to deliver written BI products. This offers the advantage that BI products can be delivered to many intelligence users simultaneously, even though they may be geographically dispersed. E-mail is a method often used where a 'push' approach is followed to disseminate intelligence to users in accordance with their BI requirements/interests. A possible disadvantage of electronic mail relates to security issues. In this regard it is important to establish if BI e-mail did in fact reach the correct recipient and not an unauthorised person. Hohhof acknowledges this problem and notes that some BI reports require security controls such as signed and numbered copies, in which case e-mail would not be a suitable method to use. All the SA banking institutions that participated in this research uses e-mail to disseminate intelligence.

7.4.4 On-line access to BI products

Gilad and Gilad (1988:156) refer to this as 'access to a database where BI products and supporting information is stored'. In this case, the intelligence user has to obtain access and find the relevant BI product and retrieve or 'pull' the intelligence from the database. Although West (2001:171) refers to the use of corporate intranets and knowledge management systems to disseminate BI products, it should also be noted that online access could include access to tailored intelligence systems. All the SA banking institutions that participated in

this research provide on-line access to intelligence users to enable users to access BI products, and two of them have implemented tailored intelligence systems.

7.4.5 Intelligence exhibitions

A novel method for BI dissemination described by West (2001:172) is the use of intelligence exhibitions especially for competitor intelligence purposes. During these exhibitions, material such as competitors' marketing material, products and other relevant information are displayed. In order to disseminate intelligence on competitors, BI staff members who have knowledge of the competitors are used to man the exhibitions. None of the SA banking institutions that participated in this research has used this method for BI dissemination.

7.5 Formats for BI products

Kahaner (1998:135) states 'not only should intelligence have all the right components, it should also be in a form that will have the biggest impact.' Various formats for BI products exist, some of which are discussed below.

7.5.1 Combining formats

Typically, intelligence output is disseminated in report and/or briefing formats. It is not uncommon to find that a BI product is disseminated in both formats to ensure that the message is conveyed to the intelligence user. In this regard, briefings are usually presented to provide intelligence users with a concise picture of the intelligence and to provide them with an opportunity to discuss the intelligence. The BI report containing more detail on the topic is also disseminated. Depending on the specific BI assignment, BI staff members may choose to present the BI briefing and disseminate the BI report simultaneously.

In some cases a BI report could be disseminated before meeting with the intelligence users, in order to facilitate discussion and questions during the briefing. In the SA banking institutions that participated in this research, both formats are used and are often combined.

7.5.2 Standardised formats

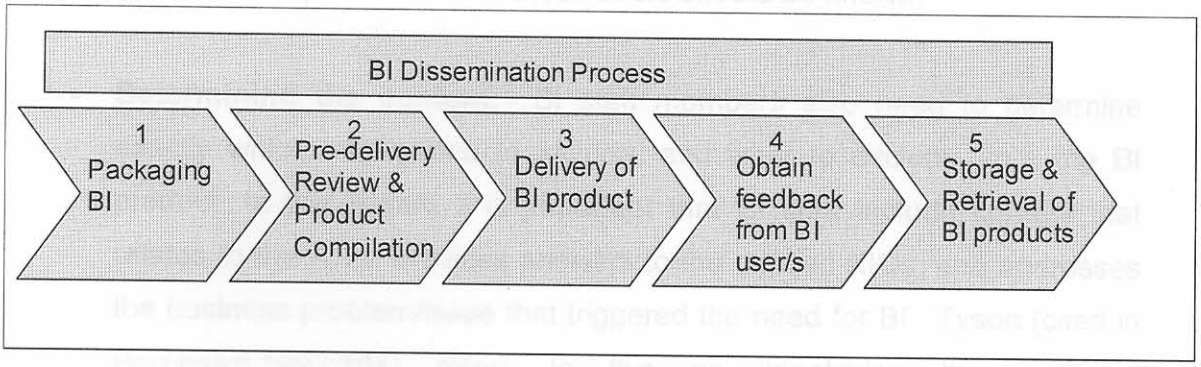
The different types of BI products referred to in the intelligence hierarchies (refer to paragraph 7.3) typically have a standardised report layout/format. Using standardised formats for both BI reports and BI briefings can assist the dissemination process in that it provides a clear structure for the communication of the content of the product. It is especially the use of specific/standard headings in reports and briefings that is useful in this regard. Headings such as 'Facts', 'Relevant facts', 'Interpretations', 'Implications' and 'Suggested course of action' can prevent factual components of BI products from being distorted by assumptions and the interpretation components of a product. Herring's description of analytical alerts (paragraph 7.3.3.1) provides a typical example in this regard. Another advantage of standard intelligence product formats is that intelligence users become familiar with the various formats of BI products, which can assist with the communication of the content. It should be noted that personal preferences of intelligence users could require that standardised formats be changed to ensure successful dissemination. All the SA banking institutions that participated in this research make use of standardised BI product formats, some of which can be adapted to suit the requirements of intelligence users when needed.

7.5.3 Formats to assist with visualization and digestion of content

It is important that intelligence users should be able to visualize an 'intelligence picture' when dealing with BI reports and briefings. This visualization assists intelligence users to understand and digest the content of BI products. In this regard McGonagle and Vella (1993: 291) advise that tables and graphs be used. Especially in banking institutions where financial comparisons are often made, a report/briefing format using tables and graphs is more suitable than the use of paragraphs. In cases where geographic locations form an important component of a BI product, maps should be used. At one of the banking institutions that participated in this research, an in-depth quarterly analysis of competitor banking institutions is performed, using an intelligence briefing format. In these briefings, which can consists of up to 50 slides, visualization is important and tables and graphs are liberally used. Tyson (cited in Bernhardt,1993:116) also uses tables to present a number of BI reports, including the monthly news bulletin, the strategic impact worksheet and the monthly intelligence briefing, as discussed in paragraph 7.3.3.2. In the researcher's opinion, the table format may not be suitable for dealing with intelligence report content that requires more detailed description. The researcher doubts that intelligence users would prefer to work through a document containing several rows of information grouped under table headings, which could fragment the intelligence and requires the intelligence user to synthesise all the fragments. The researcher is of the opinion that the format suggested by Herring for intelligence reports and analytical alerts would be more suitable to disseminating intelligence.

7.6 A five-step dissemination process

In order to support effective BI dissemination in SA banking institutions, a process consisting of five steps could be considered. This process can be depicted as follows:



Step 1: Packaging. The purpose of this step is to ensure that the intelligence produced during the analysis stage of the BI process is suitably packaged for use by the intelligence user/s. The packaging step involves a number of tasks, which include the following:

- **Review initial BI requirement**. BI staff should refer back to the BI requirement as defined during the first stage of the BI process. One of the reasons for doing this is to focus the effort of BI staff on addressing the defined BI requirement. Another reason is to determine whether specific dissemination requirements were defined. During the third step of the requirements definition process (see paragraph 4.5), specific guidelines for the format of the BI product and the delivery dates should be obtained. As Tyson (cited in Bernhardt,1993:103) points out, 'every user ... wants their intelligence reported according to their specifications'. It is therefore important to identify the specific dissemination requirements and preferences regarding the format, length, content and method of delivery. If no specific guidelines were determined during the BI requirements definition process, BI staff should attempt to discuss the different formats and delivery options with the intelligence users. In cases where BI staff

members provide intelligence products to intelligence users at regular intervals, the preferences of these users should be known.

- **Determining the content:** BI staff members also need to determine exactly which intelligence to include, and what to exclude from the BI product. In this regard it is important that BI staff include content that relates to the KITs, provides answers to the defined KIQs, and addresses the business problem/issue that triggered the need for BI. Tyson (cited in Bernhardt,1993:104) refers to this as 'identifying the essential information'. It is critical that the intelligence report provide answers to the KIQs that were defined during the BI requirements definition process. In cases where KIQs were not well defined, BI staff should focus on the 5xW questions (see paragraph 4.5). Tyson (cited in Bernhardt,1993:120) also confirms the need to address the 5xW questions in BI products. It is important that the content be clearly linked to the BI requirement. Especially when dealing with strategic BI reports, the focus should be on relating the content to the strategic plans of the organisation. In cases where the BI requirement relates to a specific business decision to be made, the content needs to be related to that specific decision. For those intelligence users who require detail, BI staff would need to include more facts in the content than they would for those who prefer summarised reports. Ultimately the content should be relevant, accurate, complete yet concise, and should be directly address the BI requirement.

- **Determining the format**. By reviewing the BI requirements as a first step in this process, specific guidelines for the format of BI output may have been pre-determined. Typically, these guidelines would relate to whether the intelligence user requires the intelligence in a specific report format or intelligence briefing, and what the length of the product should be. It

should be noted that during the requirements definition stage of the intelligence process, no intelligence/content has yet been produced and therefore the choice of format may change once the content has been generated. After determining the content and using the pre-defined/required format as a guideline, BI staff should determine which format is most suitable for packaging the content. It should be noted that where BI staff find that the pre-determined format would not be suitable for packaging the content, the intelligence user should be consulted and notified that another format would be more suitable. Although standard formats can assist BI staff members to package content, and intelligence users to digest the contents, these formats should be adapted when the contents requires this.

- **Determining the method of delivery**. Typically, BI products are delivered through means of verbal, written or other forms of visual communication. In cases where the preferred method of delivery was not determined during the BI requirements definition stage of the BI process, intelligence staff should establish if the intelligence user has specific preferences before deciding on a method of delivery. It should be noted that there is a link between the format of the BI product and the method of delivery. A BI briefing consisting of slides with mainly bullet points and diagrams should preferably be delivered through verbal and visual communication. Although such a briefing could conveniently be delivered by electronic mail to the intelligence user, the most suitable delivery method would be one where the BI analyst gives a presentation to the intelligence user, discussing each of the slides. When the output format is an intelligence report, it would be more suitable to distribute the document for intelligence users to read than to discuss it verbally with them.

- **Compiling the first draft**. Having determined the content, the most suitable format and delivery method, BI staff can compile the first draft version of the intelligence product in the determined format. According to Ackerman and Wickens (2001:131), it is important for BI staff to be able to place themselves in the shoes of the intelligence user and to try to anticipate questions and arguments that could arise when the product is disseminated. Tyson (cited in Bernhardt,1993:120) agrees with this view when he says, 'as the intelligence report is written, the writer must raise and answer questions until there are no questions left'. When compiling intelligence reports, Tyson (cited in Bernhardt,1993:115) suggests using the 'inverted pyramid method'. This method is well suited to intelligence reports as emphasis is on structuring the report 'top down'. This implies that the key intelligence message or synthesis is stated initially in the report, and is followed by a discussion of all the supporting thoughts and relevant information. As Tyson points out, this method is similar to the writing style used by journalists when they compile newspaper articles, with the key message being conveyed in the first few paragraphs of the story. It is also extremely important that the factual content of a BI product should be clearly distinguishable from assumptions and interpretations made by BI staff. This should be done in order for intelligence users to review the interpretation made by BI staff in the context of the factual information used in the product. This provides an opportunity for intelligence users to question the analysis and synthesis of the BI analyst.

Step 2: Pre-delivery review and final product compilation: The purpose of this step is not to delay the dissemination process, but to act as a checkpoint for the accuracy and relevancy of the draft BI product, and to add value to the draft BI product through enhancements. Typically, the review also includes some discussion of the report and the editing of the BI product if required. It should be

noted that this is an iterative process, involving the BI analyst responsible for compiling the BI product and those that review and suggest changes. The intelligence forum concept, as suggested by Gilad and Gilad (1988:156), can be used to good effect as a review meeting consisting of BI staff members that can review the BI report and add comments or other input. With reference to research conducted by the CIA, Ackerman and Wickens (2001:131) state that a product review is a crucial step for effective dissemination, and that this can add value to the draft BI product. According to these authors, the CIA concluded that a review process was not only crucial to ensure the quality of their intelligence products, but that it also improved the standard of analysis and report compilation skills of analysts. The key to successful review is to have experienced BI staff members review all draft products before they are delivered. Provided that the reviewers have the necessary background, they can review and question the content and interpretation of a BI product. It should be noted that the complexity of the BI requirement could determine how intensive the review should be done. When dealing with complex BI requirements of strategic significance, the review process would typically be more intensive than when dealing with a weekly current intelligence report. It should furthermore be noted that the review step could also serve to ensure that the latest relevant information is not excluded from BI products, as new information could become available during the process of compiling a draft BI product.

Ackerman and Wickens (2001:131) suggest that during the review step, BI staff should ask themselves the following questions:

- Will the intelligence user be able to make a sound decision based on this BI product?
- Will this BI product address the BI requirement and the underlying business issue/problem?

- Having confirmed the previous questions, the final and probably most important question to ask is whether the intelligence contained in the product is actionable or not.

It is also important to ensure that BI products include the latest (relevant) information available. It is of little use to deliver BI products to intelligence users who have already had access to more recent information, which is not included in the BI product. Especially in the case of current intelligence products there should be much more emphasis on managing the time that has elapsed between receiving and analysing information and the dissemination thereof, as these intelligence products are aimed at providing intelligence users with near real-time intelligence. After having completed the pre-delivery review, changes/ enhancements to the draft product can be made, after which the product can be delivered to the relevant intelligence users.

Step 3: Delivery of BI product: During the delivery step, BI staff provide the BI product to the intelligence user. This step involves the communication of the intelligence output to the right people at the right time. Although verbal communication is considered by many to be the most effective method, it should be noted that there are several ways of conducting this (as discussed in paragraph 7.4).

Step 4: Obtaining intelligence user feedback and follow-up: Having delivered the BI product during the preceding step, BI staff members need to obtain feedback from intelligence users as to the actual value of the BI product, in other words, they should determine whether the BI requirement has been sufficiently addressed for the intelligence user to deal with the business issue that gave rise to the need for BI. Typically, the delivery method used during the dissemination process will determine the most suitable method to use to obtain

this feedback. In the case of BI briefings presented to intelligence users, this feedback can be obtained during or after the presentation by requesting the intelligence users to provide their feedback verbally, or by completing a feedback form after the briefing. When delivering BI reports (paper based and in electronic format), a BI feedback form to be completed and returned by the intelligence users should be attached to the report. Regardless of the delivery method used, BI staff must ensure that they obtain feedback from users as part of a quality control procedure. The value of this step cannot be overemphasised, as it not only provides an opportunity for users to confirm whether the BI products they received addresses their needs or if they require additional intelligence, but also creates an opportunity for new BI requirements to be identified (also refer to Chapter 4). Farrell (2001a-online) refers to this step as the 'disengagement' phase of the intelligence process and suggests that BI staff use the intelligence user's feedback to reflect and to identify ways to improve the process. (Also refer to paragraph 3.5.3)

Ackerman and Wickens (2001:124) take this a step further and emphasise the importance of providing assistance to intelligence users after delivery, as these users may have questions or might need advice before making a decision.

Step 5: Storage/organisation and retrieval of BI products: The final step in the dissemination process is to ensure that BI products are stored in a manner that will ensure easy retrieval. In banking institutions BI products are generally stored in electronic format in a database. Before storage, the information needs to be organised in logical structures. It is important to note that for BI product a centralised database is preferable to a dispersed database. Gilad and Gilad (1988:135) refer to this as a type of system where 'only complete intelligence reports...are available'. This implies that the underlying information and knowledge results of the analysis/synthesis process are not stored in this specific

database, but are stored separately for use by BI analysts. It should be noted that in some cases it might not be feasible to store complete BI products in an electronic format, especially where very large format graphic material is used (e.g. a very large map or marketing posters of competitors). In such cases a reference should be made on the database to the location where 'large format' media are stored. Another important requirement with regard to a central repository/database for BI products is that version control must be exercised and that access to the database must be managed through an appropriate security system using access profiles. Typically, only BI staff would be able to store products and determine the access profiles on such a database. In addition to being a storage and retrieval facility for BI staff, Gilad and Gilad (1988:135) point out that this database also 'serves as a vehicle for dissemination', since access to it allows intelligence users to 'pull' already produced BI products as and when required.

7.7 Guidelines for successful dissemination

The process of disseminating BI products as described above provides five logical steps that BI staff of banking institutions can follow in order to disseminate their BI products. In addition to following this step-by-step process, it is important to take note of a number of guidelines developed by intelligence practitioners for the successful production and dissemination of BI products. These include the following:

- **Address the BI requirement with actionable intelligence.** One of the main reasons for referring back to the BI requirement during the first step of the dissemination process is to remind BI staff of the reasons for conducting all the previous stages in the intelligence process. Although reference was made to this on two occasions (Steps 1 and 2 of the dissemination process), the defined BI requirement serves as a reminder

of the underlying purpose of the whole intelligence process. Therefore the BI product must contain relevant and accurate intelligence content in an applicable format in order to facilitate the use of BI products by intelligence users. Kahaner (1998:134) maintains that to achieve success during the dissemination process, BI products must be responsive to management needs and be focussed and not general in nature. Stanat (1990:153) states for intelligence to be useful, it needs to be actionable. Tyson (cited in Bernhardt,1993:114) also emphasises the importance of 'decision-orientated information'. In order to make BI products more actionable, BI staff should ensure that the BI product includes answers to the KIQs. Furthermore, if the BI requirement is linked to a decision to be made, then the BI product should include different options for the intelligence user, as well as recommendations and advice regarding a particular decision or course of action. This does not imply that BI staff will make decisions on behalf of the intelligence user, but that BI staff aim to make the BI product as actionable as possible.

- **Assist the intelligence user with his/her process.** After delivering the BI product, BI staff should not necessarily see their task as completed, as it is up to the intelligence user from that point onwards to make a decision and take action. Chances are good that the intelligence user will need further assistance and will have more requirements, which BI staff can assist with.

- **Ensure accuracy.** Analysts must verify the accuracy of the information contained in BI products in order to ensure that BI products have what Kahaner terms ' a high trust level'. Although the verification process of the previous stage of the intelligence process, as described in Chapter 6, is specifically aimed at this, the pre-delivery review step of the dissemination

process should also include some quality control. As Ackerman and Wickens (2001:124) point out, 'this does not guarantee that no inaccurate intelligence will be produced and disseminated. In cases where unconfirmed information is included in an intelligence product, it must be specifically pointed out to the recipient'. Inaccurate BI products can lead not only to faulty decisions, but could also damage the trust level of executives in the whole BI programme.

- **Ensure timeliness of BI products.** Whilst it is important that care should be taken to ensure that quality intelligence products are compiled, reviewed and professionally presented/delivered, it is equally important that BI products be delivered when they are needed to add value to intelligence users. Both Stanat (1990:153) and Kahaner (1998:134) make specific mention of the need for timeliness when disseminating BI products. Stanat states that BI reports are useful only if they are disseminated at a time when they will be useful to intelligence users by enabling them to make proactive business decisions. Ackerman and Wickens (2001:125) confirm that 'excellent intelligence too late has very little value, mainly because it is too late to make a decision and take action'. In this regard it is important to ensure that the time that passes between the interpretation of intelligence in the previous stage of the intelligence process and the dissemination stage be kept as short as possible. This is necessary in order to prevent a situation where the BI product becomes 'outdated' before dissemination, owing to the flow of new information.

- **Promote conciseness.** BI products should be kept as focussed and as brief as possible, without omitting essential intelligence items. The key is not to include all the detail required to substantiate the BI product, but to provide a

clear and concise message that has factual support. Tyson (cited in Bernhardt,1993:104) refers to this as the inclusion of only relevant supporting data. This does not imply that an intelligence product consisting primarily of recommendations/advice or predictions can be disseminated without the inclusion of facts. In the researcher's experience, intelligence users need to understand the factual base on which the interpretation is based. Thus it should be common practice to refer to key facts and relevant facts, and to indicate which component of a BI product contains the interpretation and recommendations and/or predictions.

7.8 Conclusion

Because of the importance of the dissemination stage for the successful completion of the BI process, BI staff should take cognisance of the different approaches, methods and formats suggested in the literature and should consider using a combination of these in a step-by-step process to disseminate BI products to the organisation's intelligence users.

In deciding on the appropriate combination, BI staff members should ensure that the chosen products, format and methods would assist in addressing the BI requirements of intelligence users and lead to BI products being disseminated in the most effective manner.

The execution of a step-by-step dissemination process that emphasises the appropriate packaging and quality assurance of BI products before delivery can assist BI staff in providing the right intelligence product to the right person in the correct format exactly when and where it is required. Failure to properly execute this process, taking cognisance of the criteria for successful dissemination, could lead to a situation where BI products are disseminated, but not necessarily acted upon by intelligence users, which could result in the failure of the BI assignment.

Ultimately, the success of the whole BI process is measured in terms of whether or not the intelligence disseminated was used and, if so, what the impact of its use was in terms of the organisation's business performance.

By successfully completing the dissemination stage of the intelligence process and enabling intelligence users to take action on intelligence products, BI staff could find themselves back at the first stage of the BI process, having to deal with new BI requirements. This situation arises mainly because, as Kahaner (1998:136) states, 'whatever action is taken as a result of intelligence will present new requirements and needs. After all the company's status will change based on new actions that will be taken'.

CHAPTER 8: Summary of research findings

8.1 Introduction

In the preceding chapters of this dissertation, the researcher aimed to describe and explain key concepts related to BI processes, different approaches to dealing with the stages of the BI process, and the application of these processes in SA banking institutions. On the basis of the literature reviewed, the input obtained from the three banking institutions that participated in the research, and the researchers practical BI consulting experience gained in banking institutions, the researcher also proposed specific steps to be considered during each stage of the BI process.

The aim of this chapter is to provide a summary of the researcher's key findings regarding the research problem and sub-problems, as identified in the first chapter of this dissertation.

The first section of this chapter deals with the researcher's findings relating to the research problem and corresponding research objectives, as specified in Chapter 1. In this regard the researcher provides a brief summary of the research objective and research findings contained in Chapters 2 to 7 of this dissertation. Where applicable, the researcher made recommendations and suggested practical steps to be considered for BI assignments in SA banking institutions. In the second section of this chapter the researcher identifies topics for further research.

8.2 *Defining business intelligence*

8.2.1 Research objective

In order to determine the meaning of the concept 'business intelligence', Chapter 2 focussed on finding definitions for the term 'intelligence', since our understanding of term 'business intelligence' essentially depends on how well we understand the meanings of the terms 'business' and 'intelligence'. Whereas the term 'business' proved to be well defined and easy to understand, various and varying definitions and interpretations were found for the term 'intelligence'.

8.2.2 The term 'BI' is widely used, but not clearly defined

The researcher found that the term 'business intelligence' is widely used within SA banking institutions, and that all the banking institutions that participated in the research maintain and use business intelligence in some form or other. Despite the growing number of opinions expressed around BI, the researcher found that the relevant literature provided few useful definitions of BI.

8.2.3 Confusion over the exact meaning of BI

In searching for a definition of business intelligence, the researcher found various opinions and definitions in literature and in use within the business community. In the researcher's opinion, this creates confusion as to the exact meaning of the term. The researcher established that various schools of thought existed around the concept of BI. It also became evident that a clear distinction needed to be made between those who express thoughts about BI and those who actually formulate definitions. In this regard it was found that three types of definitions could be discerned, i.e. those that adopt a holistic perspective, those that have a narrow business focus, and those that have an IT perspective. In the researcher's opinion a holistic perspective towards BI is more aligned with the

fundamentals as expressed by the intelligence community and includes a broad spectrum of intelligence activities under the banner of BI. Proponents of the holistic view of BI do not view BI as separate or different from Competitive Intelligence (CI), Customer Intelligence (CINT), or any other forms/types of intelligence, whereas scholars with a narrow focus would argue for artificial boundaries between various forms of BI. As could be expected, the IT suppliers have a strong tendency towards the view that BI is about IT and that BI cannot be conducted without the use of IT.

8.2.4 Finding the meaning of 'intelligence'

The researcher established that in the military/governmental intelligence community, the concept 'intelligence' was clearly defined, and that definitions typically promoted an understanding of the term, rather than add to the confusion. The researcher found that in these definitions:

- A clear distinction is made between information and intelligence, and that unprocessed information is not considered to be intelligence.
- That intelligence output or products can be produced only after an intelligence process has been applied.
- Unless it is actionable, intelligence cannot add value.

8.2.5 A definition of BI proposed

Based on an analysis of the definitions found in the intelligence community and the various views that exist regarding the meaning of BI, the researcher proposed, in paragraph 2.7, that the following definition be used:

> *Business Intelligence is the actionable output of a BI system that collects data, information and knowledge and turns it into the intelligence required to*

conduct business.

No form/type of intelligence is excluded from the above definition, but emphasis is placed on the importance of addressing intelligence requirements for the conduct of business, whether the business requires intelligence about its customers and competitors, or about external environmental factors. The BI system, as referred to in the above definition, does not imply that it is an IT system. Although IT would play an important part in many BI systems, it is primarily an enabler to allow BI staff members to extract and manipulate information. The BI system referred to in this definition consists of various components of which processes, resources and IT are but some. Ultimately the proposed definition provides a clear definition of BI, which is fundamentally aligned to the definition used by the intelligence community and supports the holistic approach towards BI. Without attempting to use popular business terminology, the meaning of BI is clear: it is the intelligence required to conduct business.

8.3 Intelligence processes

8.3.1 Research objective

To find an appropriate definition for the concept 'intelligence process', and determine which processes are available to and suitable for use in SA banking institutions. The researcher's findings, based on a study of the relevant literature, are discussed in Chapter 3.

8.3.2 A process to produce actionable intelligence

An intelligence process is a process that converts data, information and knowledge into intelligence output to address the specific intelligence requirements of intelligence users. The purpose of an intelligence process is to produce actionable intelligence output.

8.3.3 Triggering the intelligence process

Typically, an intelligence process is triggered by an intelligence user who needs to deal with a business issue or has to make decisions that require intelligence input. Intelligence processes could also be triggered when BI staff members identify specific intelligence requirements. The output of an intelligence process, also referred as intelligence products, often includes insightful recommendations and intelligence regarding future events.

8.3.4 The process typically consists of four to five stages

In order to produce actionable intelligence output, various steps or stages of the intelligence process need to be executed. These usually include four to five specific stages (as discussed in paragraph 3.3) that include requirements definition, assessments, collecting of information, analysis, and dissemination and storage. The omission of any of the stages would impact on the quality of the intelligence output produced. By not following the stages of an intelligence process, BI staff members run the risk of not disseminating intelligence products, but information or intelligence of inferior quality, which could have a negative impact on business performance

8.3.5 Various intelligence processes available

Various intelligence processes are available for producing intelligence, some of which could be considered for application in SA banking institutions. In this regard it should be noted that those intelligence processes that are typically applied in business organisations are derived from intelligence processes, which were initially developed for governmental or military intelligence purposes. Typical examples of these intelligence processes include the intelligence processes as suggested by Kahaner and Fuld, which are derivatives of the intelligence process used by the Central Intelligence Agency (CIA) and other intelligence services world-wide (see paragraph 3.5).

8.3.6 Complex and resource intensive processes may not be suitable

It is important to bear in mind that intelligence processes that were specifically designed for intelligence assignments in governmental or military organisations, may not be suitable for use in SA banking institutions. Some of the reasons for this are that those processes are often complex in nature, typically require vast amounts of resources, and utilise methods that would be both unethical and illegal in the banking environment (e.g. the collection of information through espionage or clandestine surveillance). Furthermore, the development of intelligence products is not the core business of SA banking institutions, but the provision of banking services and products to clients. For this reason only those derivatives of the military intelligence processes that are less complex and resource intensive should be considered and adopted to address the intelligence requirements of SA banking institutions. In this regard the Delta Cycle developed by Farrell, Underwood's Nine-stage Process and the Alpha Cycle (as discussed in paragraphs 3.5-3.6) are probably more suitable for application in banking as

they address certain deficiencies in the CIA-derived intelligence processes and were designed specifically for business purposes.

8.3.7 The importance of the intelligence process

The importance of the process by which information is turned into intelligence cannot be overemphasised. Ultimately, without the application of an intelligence process, intelligence output cannot be produced.

8.4 The BI requirements definition stage

8.4.1 Research objective

In order to determine how important the intelligence requirements definition stage is for the conduct of BI, and how SA banking institutions deal with BI requirements, Chapter 4 focussed on determining:

- The importance of BI requirements definition for the intelligence processes in general
- How intelligence requirements typically originate in SA banking institutions
- The various approaches adopted by SA banking institutions in dealing with BI requirements

8.4.2 The importance of requirements definition stage

The importance of BI requirements definition as part of an intelligence assignment cannot be overemphasised as it is critical to meet the intelligence user's intelligence requirements by producing relevant and actionable intelligence output. Defining intelligence users' BI requirements is typically the starting point for an intelligence process, and as such a critical success factor in

directing the remaining stages of the process. This requires BI staff members to follow a process that assists them in distinguishing between information needs and intelligence requirements, and also in defining intelligence requirements in detail to enable them to plan and execute the various stages of the intelligence process, which follows the requirements definition stage. All the SA banking institutions that participated in this research indicated that BI requirements definition was an important stage and the starting point for their intelligence processes.

8.4.3 Origination of BI requirements

On the basis of the research undertaken for this dissertation it was established that BI requirements originate in various ways. Often business problems/issues that need to be dealt with give rise to key business questions, which in turn lead to requirements for intelligence. All the SA banking institutions that participated in this research indicated that the identification of business problems/issues and the resulting questions lead to the identification of BI requirements. It was further indicated that BI requirements originate as a result of internal planning and decision-making processes that require intelligence input, and through intelligence users reacting on intelligence products and information bulletins disseminated to them.

8.4.4 Four approaches to deal with BI requirements

In this research four different approaches typically adopted to deal with BI requirements are identified. Firstly, a reactive approach could be adopted, where intelligence users identify intelligence requirements and request/task BI staff to address these requirements. Secondly, a proactive approach could be adopted, which differs from the reactive approach in that BI staff act on their own initiative

and identify BI requirements without waiting for or seeking input from intelligence users. This often requires that BI staff members need to be able to identify significant issues/trends that would add value to intelligence users. A third approach, the 'trigger approach', is adopted when BI staff members aim to encourage intelligence users to provide them with BI requirements. The fourth approach deals with BI requirements by using a pre-defined BI schedule approach, which allows for the production of intelligence products at regular intervals in accordance with a pre-approved BI schedule. This approach not only assists BI staff to properly plan BI assignments, but also provides intelligence users with BI products at predetermined intervals. All the banking institutions that participated in the research indicated that they used a combination of these approaches, but also indicated a need to become more proactive. Some of the banking institutions seemed to be more inclined to emphasise the reactive approach, while others tended to emphasise the proactive approach, but they adopt the 'trigger' approach and make use of BI schedules.

8.4.5 No specific step-by-step process

Irrespective of the approaches followed to deal with BI requirements, none of the banking institutions involved in the research divulged detailed steps of a formal BI requirements definition process that is typically followed. This prompted the researcher to propose a process for BI requirements definition that moves beyond the identification of requirements to the **definition** of these requirements. Based on the research of Herring and Gilad and Gilad as well as the input obtained during research conducted for this dissertation, the researcher proposed that a BI requirements definition process consisting of five steps should be considered by SA banking institutions during the BI requirements definition stage of an intelligence process.

8.5 *The collection stage*

8.5.1 Research objective

In order to determine how SA banking institutions conduct the collection stage of the intelligence process, the researcher aimed to establish, in Chapter 5, if the banking institutions involved in the research had implemented a BI collection process and, if so, which types of information sources were available and typically used for collection purposes. The researcher also determined how the collection effort was approached and what types of collection processes were applied. Finally, the researcher suggested seven steps to be considered by SA banking institutions for the execution of the collection stage of the BI process.

8.5.2 All the banking institutions that participated have implemented a BI collection process

On completion of the BI requirements definition stage of the intelligence process, BI staff members are typically faced with gaps in the data, information and/or knowledge that they require to address the defined BI requirement. The purpose of the collection stage of the intelligence process is not to collect as much as possible information, but to selectively collect data, information and knowledge that will assist BI staff to address the identified BI gaps and ultimately the defined BI requirement. The research for this dissertation indicated that the need for a formal collection process was realised by all the banking institutions involved in the research, as all of them have implemented a BI collection process.

8.5.3 Not all BI sources are listed or optimally exploited

Vast quantities of data, information and knowledge sources are available to SA banking institutions to support the collection process during BI assignments. These sources could be classified as primary and secondary sources, internal and external sources, and public and non-public sources. In order to identify and obtain access to the most appropriate BI source/s for collection purposes, BI staff need a list of all the BI sources at their disposal. In this regard the importance of the BI source audit and the development of a collection plan cannot be emphasised enough. The research conducted amongst SA banking institutions confirmed that many BI sources are utilised and that both primary and secondary sources can be of immense value to the collection effort. One of the key findings of this research indicated that some of the participating banking institutions were not exploiting all their BI sources optimally or did not have lists of all the available BI sources. Only one of the institutions confirmed that they had completed a BI source audit and had a list of all the sources at their disposal to support the collection process.

8.5.4 'Just-in-time' collection practised

Two fundamental approaches to BI collection were identified in the literature studied. The one approach requires a specific BI requirement to be determined before the collection process is executed ('just-in-time' collection), whilst the second approach is more proactive and emphasises the need to collect information of interest on an ongoing basis. Both these approaches have advantages and disadvantages, but it should be noted that the proactive approach has some resource implications as it requires BI staff members to collect data, information and knowledge of interest without trying to address specific intelligence gaps. The 'just-in-time' approach to collection appears to be

the most practical approach to adopt. Although all the banking institutions that participated in this research indicated that information is collected and stored on an ongoing basis, their collection efforts are linked to addressing information gaps. In order to prevent a situation where irrelevant information is collected and pushed into the BI system, one of the participating banking institutions has built in a comprehensive information 'filtering' process to filter all newly collected information. Not one of the SA banking institutions that participated in this research places emphasis on proactively collecting as much as possible relevant information merely because it may become useful at a later stage.

8.5.5 Importance of internal collection networks

All the banking institutions that participated in this research focus on the establishment and maintenance of internal collection networks for the collection of information. Staff members play an important role in collecting information, especially from customers and competitors. Not only BI staff members are utilised as BI 'collectors'; relationship managers or personal bankers are also frequently used as sources for BI purposes, as they are in a position to collect 'soft' information during customer contact. One of the SA banking institutions that provided input for this dissertation, has implemented an incentive programme to entice staff members to collect and share information of value. Although the researcher believes that staff members of banking institutions who are also customers of those banking institutions (internal customers) should be utilised as sources of customer-related information, the SA banking institutions that participated in the research for this dissertation do not appear to exploit this source as part of their internal collection network.

8.5.6 Establishment of external collection networks limited

In addition to the use of internal (staff) collection networks, all the participating banking institutions also make use of external collection networks (e.g. business contacts, consultants, researchers or BI companies) to support the internal collection network.

8.5.7 Linear collection processes applied

Based on the literature reviewed by the researcher, a distinction can be made between linear collection processes and those that are non-linear, e.g. the 'diamond paradigm' process. In the linear processes, collection is executed in a step-by-step manner and the intelligence user does not become directly involved in the collection of information or the sources of information. These processes are often criticized as being slow and cumbersome, preventing the optimal flow of collected information to intelligence users. In the diamond paradigm, intelligence users, BI collectors, BI analysts and sources of information communicate directly with one another and information flows freely between these role players. Research conducted for this dissertation indicated that none of banking institutions that participated has adopted a collection process based on the diamond paradigm. In all these banks there is an informal/free flow of information between BI staff members and information sources during the collection process, but not to and from intelligence users. In order to ensure that the collection process is properly managed and intelligence users do not become too involved in the collection stage, two of the participating banking institutions make use of 'BI champions/agents' who also act as collectors and conduits for collection tasks between intelligence users and BI sources. In none of the participating banks, a situation exists where intelligence users actively engage

with BI sources as part of the BI collection process without the involvement of BI staff.

8.5.8 A seven-step process proposed

The researcher proposes (see paragraph 5.6.2) that SA banking institutions should consider adopting a collection process consisting of seven steps that is more pragmatic that the typical linear approach, yet ensures that that the collection process is properly managed without burdening intelligence users during the various steps. In essence, this process emphasises the need to understand the available sources and then planning the collection effort before embarking on collecting data, information and knowledge. In this regard, the process remains true to the fundamentals of collection as practised in the intelligence profession. One of the institutions that participated in the research has implemented a process that includes several of the steps of the seven-step process as suggested by the researcher.

8.6 The analysis stage

8.6.1 Research objective

In order to determine how SA banking institutions conduct the analysis stage of the intelligence process, the researcher aimed, in Chapter 6, to establish the importance of this stage, the key steps of the analysis process, and the steps followed by SA banking institutions to perform the analysis stage. The researcher also aimed to identify the analysis methods commonly used and suggested a step-by-step process that SA banking institutions could consider implementing for the analysis stage of the BI process.

8.6.2 The most important stage of the BI process

After having collected data, information and knowledge during the collection stage of the BI process, the next stage deals with turning collected material into intelligence. It is during this stage that intelligence is generated, often from disparate information sources. This stage of the process is often viewed as the most challenging and the most important stage of the BI process. In the researcher's opinion, this stage should not be approached in an ad hoc manner.

8.6.3 This stage involves more than analysis

Although this stage of the BI process is often referred to as the 'analysis stage', it should be noted that, in order to generate intelligence, this stage involves not only analysis activities, but also the collation, synthesis and interpretation of information and knowledge. It is also important to note that it involves more than the application of analysis methods.

8.6.4 Participating banking institutions focus on analysis methods

Whereas all the SA banking institutions that participated in the research had realised the need for a formal collection process and have implemented collection processes, the findings of this research indicated that the same did not apply with regard to the analysis stage of the BI process. The researcher found that although BI staff in the participating banking institutions viewed this stage as being of critical importance and had access to analysis methods, and in some cases specialised intelligence systems, a formal step-by-step BI analysis process was not necessarily implemented. In one of the banking institutions, senior BI staff confirmed that although a generic analysis process, which focussed on the

use of specific methods, had been designed, the implementation thereof in the various business units proved to be a major challenge, mainly because of a lack of analysis skills. One banking institution also reported that the analysis process that was being utilised consisted mainly of the steps required to apply the chosen methods of analysis. At another of the institutions extensive use is made of external analysts, who apply their own internal analysis processes.

8.6.5 Analysis methods typically used

As in the case of collection methods, there are numerous methods of analysis that could be applied during the BI analysis process (see paragraph 6.4). The methods used during the analysis stage are not necessarily restricted to methods that were designed with intelligence analysis in mind, and many of the analytical methods used for intelligence analysis are not indigenous to the intelligence professions, but originate from a variety of disciplines that include strategic planning, market research, futures research and other social sciences. The methods used for BI analysis purposes can be classified as qualitative, quantitative and hybrid methods. Because intelligence analysis is more than just information analysis, summarisation or synthesis, and includes interpretations, predictions, judgements and conclusions, qualitative analysis methods are usually applied during this stage of the intelligence process. The researcher believes that BI staff should ensure that, when appropriate, both quantitative and qualitative analysis methods should be applied in the analysis stage. In the case of the SA banking institutions that participated in the research, the most commonly used analysis methods applied included hypothesis generation, SWOT analysis, 5 Forces and value-chain analysis. In addition to the above methods, one of the participating banking institutions also uses both network and timeline analysis. It was established that two of the banking institutions view war-gaming as an important analysis method, whereas the other uses this method,

but does not deem it to be of particular significance. In one banking institution it was envisaged that war-gaming, should be used by BI staff for analysis purposes at the business unit level, and that the output of all the business unit war-gaming exercises should be integrated at corporate level. The use of data mining and multidimensional modelling was found to be important quantitative methods, but the participating banking institutions indicated that it was the output of these methods that is typically used for further BI analysis.

8.6.6 Too much emphasis on analysis methods

The researcher believes that a BI analysis process that consists merely of the application of various methods could have disadvantages in that the application of methods becomes the core steps/activities of the process. The researcher therefore suggests that an analysis process be considered during which appropriate methods are identified and applied, but that, after application, specific steps be followed during which emphasis is placed on the integration and interpretation of the output of the analysis method and other relevant information.

8.6.7 Importance of BI analysts

The researcher would like to emphasise that, even though there are various ways of dealing with the analysis stage of the BI process and numerous methods and models available to assist BI staff with this stage, these do not guarantee that information will be turned into actionable intelligence. Of critical importance is that BI staff members trained as BI analysts should follow a step-by-step process that places particular emphasis on the interpretation of the information that was analysed and synthesised. Ultimately, it is the BI analyst that plays a pivotal role in ensuring that quality intelligence is generated during this process,

even though technological advances may create the impression that the analysis, synthesis and interpretation steps could be automated with IT.

8.7 Dissemination of BI products

8.7.1 Research objective

In determining how SA banking institutions disseminate BI products, the researcher aimed, in Chapter 7, to establish how intelligence dissemination should be approached, which methods are typically used, and in which formats BI products are typically disseminated.

8.7.2 No formal process followed

As in the case of the analysis stage of the intelligence process, the researcher found that a formal step-by-step BI dissemination process was not necessarily followed by the SA banking institutions that participated in the research. The researcher therefore recommends the adoption of a five-step dissemination process that placed particular emphasis on quality assurance and alignment with the intelligence user's defined BI requirement.

8.7.3 Final stage of the intelligence process

Often described as the 'moment of truth' and the final stage in many BI processes, the dissemination stage is not less important than the preceding analysis stage. After having turned data, information and knowledge into intelligence during the analysis, this intelligence output needs to be disseminated to intelligence users in order to complete the BI process. This research established that the dissemination stage can be described as consisting of two processes. The first process aims to add value to the output of the analysis and

synthesis stage of the BI process by doing further synthesis and packaging the intelligence in an intelligence product format. The second process involves communicating the intelligence product to intelligence users. The purpose of the dissemination stage of the BI process is to provide the right intelligence product to the right person in the correct format, exactly when and where it is required. The researcher is of the opinion that if the dissemination of BI products is not effectively orchestrated, the value of the whole BI process will be negatively impacted.

8.7.4 Various approaches used to deal with dissemination

Some of the typical BI dissemination approaches include the 'push/pull' approach, the use of predetermined BI programmes, and BI product hierarchies. All three banking institutions that participated in this research use a combination of the 'push' and 'pull' approaches. In one institution there is a strong emphasis on limiting the 'push' approach in favour of the 'pull' approach. In this case, those BI products that are typically compiled on a monthly and quarterly basis are 'pushed' to intelligence users. In contrast to this, the same institution stores the daily/weekly current intelligence reports in an intelligence database, which requires intelligence users to pull intelligence from the database daily. In order to support the 'pull' approach, all the participating banking institutions have intelligence/knowledge databases that are accessible through their corporate intranets. Two of the banking institutions involved in the research have purpose-built intelligence systems to support their intelligence processes. In one of the banks, a process was implemented that alerts intelligence users according to their interest profiles when new BI products are available in order to facilitate a 'pull' approach.

8.7.5 BI product hierarchies are commonly used

As it is uncommon to find that a single type of intelligence product fits all the needs of intelligence users, a hierarchy of intelligence products is often used to disseminate intelligence. Typically, such an intelligence hierarchy consists of various types of BI products suited to different purposes. Generally one can distinguish between BI products that are time based (disseminated at specific intervals) and those that are topic oriented. The researcher established that although there are some differences in the types and formats of BI products disseminated in participating banking institutions, similarities exist in respect of the time-based BI products. A typical example is that of BI reports/briefings regarding competitor activities and market trends that are usually disseminated on a monthly and quarterly basis in the participating institutions.

8.7.6 Methods of dissemination

Some of the most common forms used for the dissemination of intelligence output are printed and electronic intelligence reports, BI forums, BI briefings, on-line access to intelligence products, and intelligence exhibitions. In the SA banking institutions that participated in this research, BI reports in both printed and electronic form are widely used to disseminate intelligence. In one of participating banking institutions, BI forums are used to discuss and disseminate intelligence products on a monthly basis, whereas in the other two BI briefings are widely used as method to disseminate intelligence, often in conjunction with the dissemination of BI reports. The research further established that, in addition to the above dissemination methods, all the participating banking institutions provide on-line access to intelligence users to enable them to access BI products. None of the SA banking institutions that participated in this research had used intelligence exhibitions for BI dissemination purposes.

8.7.7 Reports and BI briefings used in conjunction with each other

Typically, intelligence output is disseminated in report and/or briefing formats. It is not uncommon to find that a BI product is disseminated in both formats to ensure that the message is conveyed to the intelligence user. In the SA banking institutions that participated in this research both formats are used in conjunction. All the SA banking institutions that participated in this research make use of standardised BI product formats, some of which can be adapted to suit the requirements of intelligence users when needed.

8.7.8 Disseminating 'third party' generated BI products

In the case of two of the banking institutions that participated in this research, extensive use is made of external parties to generate BI products. In one case, the institution obtains BI products from third parties on a weekly, monthly and quarterly basis. In another case, industry reports are commissioned from intelligence/information providers at regular intervals. These third parties are typically not directly involved in the dissemination process and internal BI staff members are responsible for ensuring that these products are disseminated to the relevant intelligence users.

8.7.9 Failure to disseminate properly could lead to the failure of the BI assignment

The five-step dissemination process proposed by the researcher in paragraph 7.6, places emphasis on appropriate packaging, quality assurance and alignment of BI products to the BI requirement before delivery. This process can assist BI staff in providing the right intelligence product to the right person in the correct

format, exactly when and where it is required. Failure to properly execute this process could lead to a situation where BI products are disseminated, but not necessarily acted upon by intelligence users, which in turn could result in the failure of the BI assignment. Ultimately the success of the whole BI process is measured in terms of whether or not the intelligence disseminated was used and, if so, what impact the use of BI had in terms of the organisation's business performance.

8.7.10 Identification of new BI requirements

After successfully completing the dissemination stage of the intelligence process and once intelligence users have acted on the intelligence products, BI staff could find themselves back in the first stage of the BI process, having to deal with newly identified BI requirements.

8.8 Proposals for further research

Based on the findings that resulted from the research done for this dissertation, the researcher identified a number of areas in which further research should be conducted. These including the following:

- The application of intelligence processes in other areas of the SA financial services industry (e.g. insurance and investment banking)
- The application of intelligence processes in other industries within SA, and determining how these processes differ from the processes and approaches used by SA banking institutions.
- Determining which industry in SA is the most mature with regard to the application of intelligence processes
- Determining the SA IT industry's views on the researcher's opinion that IT constitutes only one component of a BI system and supports only specific

steps of the BI process

- Determining if there is a growing awareness and appreciation amongst SA business leaders of the business value generated by the application of BI processes.

8.9 *Conclusion*

BI processes provide a critical framework for the conduct of BI assignments. They ensure that each intelligence assignment is executed in a number of stages, each stage focussed on addressing the intelligence requirement as identified by the intelligence user. While the typical four/five-stage intelligence process is commonly accepted as a benchmark for the conduct of intelligence, BI staff members tend to underestimate the steps and associated tasks involved in executing these stages of the BI process. As was pointed out in this dissertation, the steps involved in executing these stages may be more complex and resource intensive than is often anticipated, and should not be approached in an ad hoc fashion.

By following a step-by-step approach, BI staff members in SA banking institutions can ensure that they focus their efforts on generating quality intelligence output. The researcher is of the opinion that the SA banking institution that has the most effective BI process and has the will and capabilities to exploit the intelligence output generated by this process will ultimately be the most successful with its business initiatives.

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Various interviews were conducted with BI staff members of Absa, First National Bank and Standard Bank. Due to the confidential nature of the information obtained during the interviews no specific reference is made to specific interviews or banking institutions in chapters 2-8.