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:

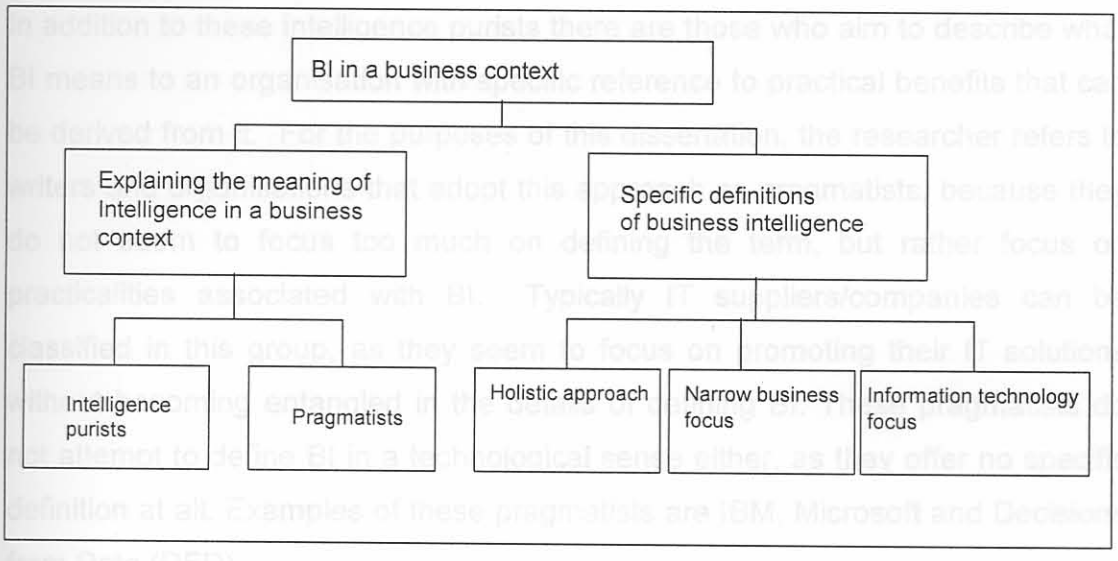

Figure 2.1 Framework for the classification of BI definitions

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:

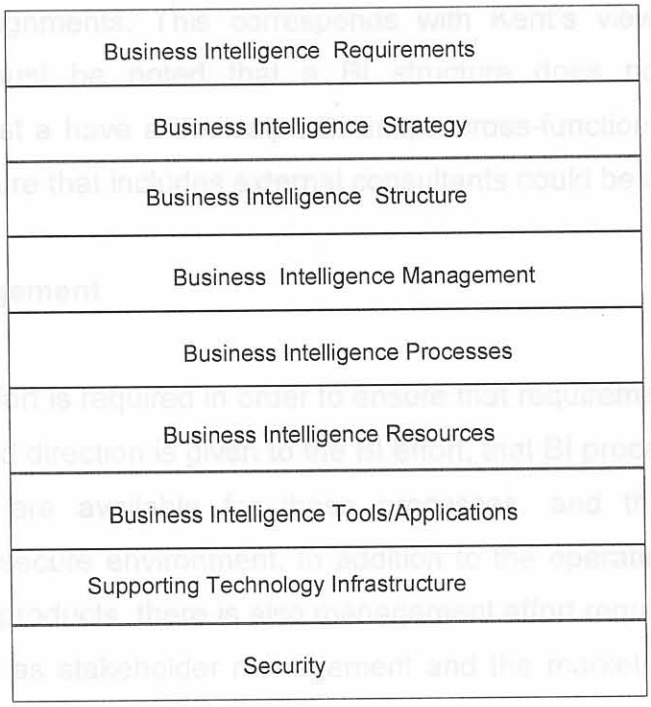

Figure 2.2 Various components of a BI system

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.