

A CONCEPTUAL COMPETITIVE INTELLIGENCE QUALITY ASSURANCE MODEL

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Abstract

Competitive Intelligence (CI) improves the quality of product and service, decision-making and it improves quality of life. However, it has been established that decision makers are not happy about the quality of CI. This is because enterprises fail in quality assurance of CI. It has been concluded that most enterprises are clueless concerning CI quality assurance. Studies that previously attempted to resolve CI quality problem were limited in scope and focused too much on the quality of information than the overall CI quality. The purpose of this study is to propose a conceptual CI quality assurance model which will help in quality assurance of CI. The research was qualitative in nature and used content analysis**.

Keywords: Competitive Intelligence, Quality Assurance, Information

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1 Introduction

CI provides competitive advantage to firms and it helps in making quality decisions (Bartes, 2014a). Moreover, CI helps to improve product or service quality and the overall quality of life (Maune, 2014; Du Toit and Sewdass, 2014). To achieve all these benefits of CI, firms have acknowledged the need to improve the quality of CI (Du Toit, 2013; Maune, 2014). Quality decisions are made from quality CI and performance of firms rely on the quality of CI (Du Toit, 2003; Sewlal, 2004). Moreover, quality of CI is very important for monitoring competition (Santos and Correia, 2010). In addition, CI professionals are satisfied when they produce quality CI (Gaidelys and Valodkiene, 2011). Moreover, it is quality CI that offers competitive advantage (Khezerloo, 2013). On the other hand, decisions which are made based on CI that has not been assessed for quality can have detrimental consequences (Wright, Bisson and Duffy, 2012). CI has to be of quality or there is no point in having it (Jucevičius and Galbuogienė, 2012). There is demand for quality CI because the prosperity of countries depend on it (Ishaya and Folarin, 2012; Fernandez, 2014). However, top management and decision makers are not happy about the quality of CI (Venter and Tustin, 2009). This is because firms fail to assess quality of CI and tend to act immediately upon receiving the intelligence (Wright, Eid and Fleisher, 2009). CI professionals tend to spend too much time collecting information than quality assuring CI (Calof

and Skinner, 1999). Some CI staffs do not have the expertise in identifying quality source of information and analysis of information (Tsitoura and Stephens, 2012). Junior CI staffs have been excluded from senior management meeting and this has a negative effect on the quality of CI (Tsitoura and Stephens, 2012). Firms have been too focused on the quality of information and not CI quality (Lukman, Hackey, Popovic, Jaklic and Irani, 2011). Firms are clueless about how to improve the quality of CI (Du Toit, 2013). There is therefore a need to study how to enhance quality of CI (Jin and Ju, 2014). The purpose of this study is to propose a conceptual CI quality assurance model after analysing the existing literature and establishing factors that influence the quality of CI.

2 Literature review

2.1 Definition of competitive intelligence

There are so many definitions of CI in the literature (Weiss and Naylor, 2010). Some scholars define CI as a product and some as a process (Brody, 2008). Roitner (2008) concludes that CI is both a product and a process. Most of these definitions differ because change of words, use of synonyms and emphasis (Brody, 2008). It has been argued that CI practitioners are too busy, therefore they do not have time to define CI (Fleisher and Wright, 2009). The existence of so many definitions in the field of CI creates confusion

among scholars and practitioners (Colakoglu, 2011). It also makes CI to be a practice with unstable borders (Haddadi, Dousset and Berrada, 2010). Due to lack of agreement on the definition of CI, it has been confused with industrial espionage (Colakoglu, 2011). However, CI is different from industrial espionage because CI is legal and ethical (Haliso and Aina, 2012). Having realised the problem of endless definitions, Pellissier and Nenzhelele (2013a) analysed fifty CI definitions to establish commonality and differences in order to propose a comprehensive and universally acceptable definition. Pellissier and Nenzhelele (2013a) define CI as 'a process or practice that produces and disseminates actionable intelligence by planning, ethically and legally collecting, processing and analysing information from and about the internal and external or competitive environment in order to help decision-makers in decision-making and to provide a competitive advantage to the enterprise.' This definition will be used for the purpose of this study.

2.2 Evolution of competitive intelligence

CI evolves from economics, marketing, military theory, information science and library and strategic management (Juhari and Stephens, 2006; Deng and Luo, 2010). Governments of countries rely on intelligence for protection of their citizens (Deng and Luo, 2010). Marketing departments of firms all over the world rely on intelligence for marketing, pricing and promotion of their products or services (Nasri and Zarai, 2013). Libraries rely on intelligence for quality sources of information for scholars (Fleisher, 2004). Strategists rely on intelligence to anticipate and prepare for future competition (Barrett, 2010).

CI has been around longer than the first time it was officially practiced in business and recorded in the literature (Juhari and Stephens, 2006). Since its inception, CI has been practiced by public, private, for-profit and non-profit, large and small organisations. While CI is a relatively new business discipline, it is evolving in complexity and importance to keep pace with rapid business development (Heppes, and Du Toit, 2009). Due to its benefits, more organisations are practicing CI either formally or informally (Nenzhelele, 2012).

Post-apartheid, South African firms have been exposed to global competition (Pellissier and Nenzhelele, 2013). To survive in the midst of global competition, South African firms are practicing CI (Du Toit and Sewdass, 2014). This is confirmed by Muller (2006) who points out that CI took root in South Africa in the mid-1990s and early-2000s. CI in South Africa emerged from the business sector (Heppes and Du Toit, 2009). Although South African firms have been inward looking, they are starting to realise the importance of CI from year to year (Adidam, Gajre and Kejriwal, 2009). De Pelsmacker, Muller, Viviers, Saayman, Cuyvers and Jegers (2005)

point out that enterprises that formally practice CI are growing in numbers and that CI is especially strong in the banking sector, the information technology sector, the telecommunications sector and the electric supply sector. Although CI practice has been widely reported for large organisations, Nenzhelele (2012) establishes that smaller enterprises in South Africa are also practicing CI. Although CI has been widely practiced in South Africa for for-profit organisations, there is lack of report of CI practice on non-profit organisations (Sewdass and Du Toit, 2014).

2.3 Competitive intelligence needs

Managers are paying more attention to CI and as a result there is a growing desire to fulfil CI needs (Barnea, 2014; Lin and Yan-Zhang, 2015). The end product of CI must satisfy the needs of decision makers and trigger new intelligence needs (Bartes, 2014a; Pinto, 2014). In order to have a clear, unambiguous and easy to understand intelligence needs there need to be a two-way communication between the CI unit and the decision makers (Nasri and Zarai, 2013; Du Toit and Sewdass, 2014). Formal meetings must be organised for CI practitioners and decision makers to discuss the intelligence needs (Bartes, 2014b). Decision makers have plenty of intelligence needs and these needs must be differentiated from information needs, prioritized and translated into Key Intelligence Topics (KITs) (Prescott, 1999; Degaut, 2015). KITs are those decision-based, strategic issues about which managers must be regularly informed to set and implement strategy (Herring, 1999). CI is aimed at answering KITs (Bartes, 2014b). According to Herring (1999), only intelligence needs that are of highest priority and key to the success of the organisation must be fulfilled with the scarce resources. KITs are established and clearly defined during the planning phase of the CI process (Bulley, Baku and Allan, 2014; Yassine, 2014). KITs can come from different level of management such as strategic, functional and tactical (McGonagle and Vella, 2012). Quality CI depends on clearly defined and unambiguous KITs (Nasri, 2011; Bartes, 2014b).

According to Barnea (2014), KITs must cover world competition, tactical and strategic issues instead of just local competition and tactical issues. It is impossible to gain competitive advantage from CI without clearly defined KITs (Barnea, 2014). According to Herring (1999), there are three categories of KITs, namely strategic decisions and actions, topics requiring early warning and profiles, characteristics and descriptions of the key players. Strategic decision and actions category includes the development of strategic plans and strategies. Early warning topics category includes competitor initiatives, technological surprise and government actions. Descriptions of key players include

competitors, customers, suppliers, regulators, and potential partners.

2.4 Competitive intelligence process

It has been widely accepted that CI is a process or practice which follows predetermined phases (Du Toit and Sewdass, 2014). CI process has been portrayed as a circle to indicate that is continuous and that the end product of one phase is the input of the next phase (Calof and Skinner, 1998). There are influential factors that play a role during the CI process (Bartes, 2014). Figure 1 shows the CI process. The CI process is made up of the following steps (Pellissier and Nenzhelele, 2013):

Planning and direction: The intelligence requirements of the decision makers are defined in this phase. The intelligence requirements are narrowed down into KITS. KITS are topics which are significant to the organisation's decision makers and give directions to CI operations. The KITS must be clear and easy to understand. The KITS must be converted into information requirements and the source of information be clearly outlined. The purpose for conducting CI is defined in this phase. The participants, resources required and recipients of the actionable CI are clearly identified in this phase.

Information collection: quality information is collected during this phase. Information must be collected legally and ethically. The information collectors must comply with the CI code of ethics. Efforts must be exercised to collect information from public sources. Information collected must meet the KITS. Information can be collected from internal or external sources.

Information sorting, capturing and storing: Collected information must be sorted, captured and stored. Related information must be sorted and captured together. Information must be stored in files which are easily accessible by all permitted users. The information must be stored in secured storage media.

Information analysis: This is the most important phase of the CI process and can be challenging. It is recommended that this phase be conducted by an experienced CI practitioner. That way the outcome of this phase will be quality actionable intelligence. The CI practitioner must during this phase be in constant communication with the decision makers to ensure that their intelligence requirements are met. Different analysis techniques should be considered and those that are relevant be used to produce intelligence that meet the KITS.

Intelligence dissemination: Quality actionable CI is communicated to the decision makers during this phase. Care must be given to ensure that safe and secure means of communication are used. CI must be communicated to the correct users of it. CI must be communicated on time or else it is no longer intelligence. There are different methods of communicating CI. These methods must be considered and the best method is selected and used.

Decision makers: Decision makers are the users of actionable CI. They are the initiators of the CI process. Decision makers are responsible for coming up with intelligence requirements. They have an important influence over the CI process. They therefore should be consulted throughout the CI process. This is to establish whether their intelligence needs have changed during the CI process. If the intelligence needs have changed, adjustments must be made and relevant information must be sourced to produce relevant intelligence.

Process and structure: The CI process is influenced by policies, procedures, code of ethics, and structures within the organisation. The CI practitioners must ensure that they comply with policies, procedures and code of ethics while conducting CI. Failure by CI practitioners to comply may put the organisation in to disrepute. It may also lead to legal consequences. Therefore, organisations that practice CI must include CI code of ethics in their policies and code of ethics. A formal CI function and process will ensure that CI is of quality.

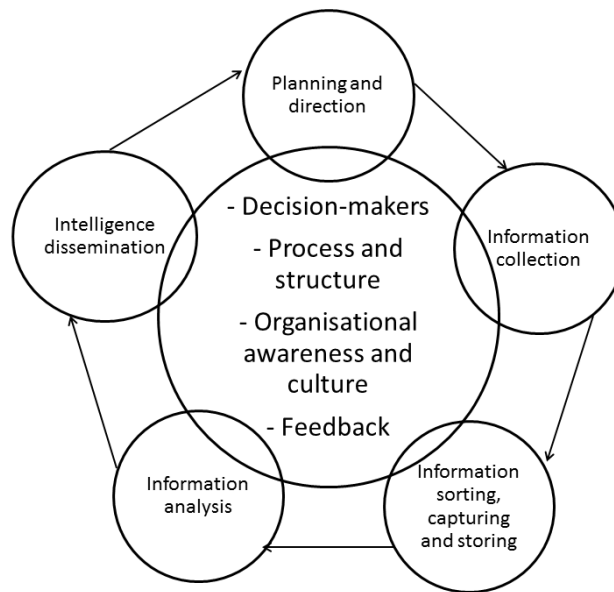
Organisational awareness and culture: A culture of CI awareness and competitiveness will ensure that CI is performed optimally. It will also lead to production of quality CI. Organisations must raise CI awareness to all employees. Employees who are aware of CI will not give information to competitors cheaply. Moreover, employees who are aware of CI will help in the CI process. Organisations must train and educate employees on CI and its benefits to the organisation. This will reduce the CI challenges and help in the smooth development of CI.

Feedback: This is an influential factor in the CI process. There should be a continuous feedback throughout the CI process. CI practitioners must continually communicate with the decision makers to ensure that relevant and actionable CI is produced. Constant feedback ensures timely adjustments to KIT. Constant feedback throughout the CI process will help to produce quality CI.

2.5 Competitive intelligence quality assurance

Sanyal and Martin (2011) define quality as 'providing excellence; being exceptional, providing value for money, conforming to specifications, getting things right the first time, meeting customer's needs, having zero defects, providing added value, exhibiting fitness of purpose, and exhibiting fitness for purpose.' Quality assurance is defined by Dunckley and Elta (2011) as 'a process of monitoring and assessing a product, services or process to ensure that it is of sufficient quality.' The purpose of quality assurance is to ensure that each phase in a process is fulfilling its objectives and ensuring that the whole process is of quality and to ensure this happens, there must be quality checks, validation and verification and communication of the results (Eriksson and Motte, 2013).

Figure 3. Competitive Intelligence Process



Source: Pellissier and Nenzhelele 2013

It is quality CI that offers competitive advantage, helps in making quality decisions, improves the quality of products or services, and improves the overall quality of life (Campos, Rubio and Quintero, 2014; Du Toit and Sewdass, 2014; Maune, 2014; Mojarad, Zangeneh and Azad, 2014). Quality CI ensures decision makers do not avoid responsibility (Fleisher and Wright, 2010). Quality CI helps produce quality strategic plans (Haataja 2011). Firms stop investing in CI when CI produced lacks quality (Sewlal, 2004; Shih, Liu and Hsu, 2010). Therefore quality should be the ultimate goal of CI practice (Bartes, 2011). Whilst firms have acknowledged the need to improve CI quality, they are clueless about quality assurance (Du Toit, 2013). Firms needs clue on how to quality assure CI (Jin and Ju, 2014). Since the phases of CI are interconnected, all the phases must be quality assured (Gaspreniene, Remeikiene and Gaidelys, 2013).

2.5.1 Quality competitive intelligence

Quality is the critical success factor of CI (Sewlal, 2004). According to Teo and Choo (2001) and Sewlal (2004), quality CI has the following characteristics: accuracy, usability, clarity, depth, relevance; responsiveness; timeous; and comprehensiveness. Nasri (2011) describes the characteristics of quality CI as follows:

- *Accuracy*: the intelligence must be accurate
- *Clarity*: the intelligence must be clear and understandable by the users/decision makers
- *Usability*: the intelligence must be usable or actionable
- *Depth*: intelligence must be sufficient to help the decision makers to make a decision

- *Relevance*: intelligence must fulfil key intelligence topics
- *Responsiveness*: the intelligence system must be able give feedback timeously when there is an intelligence request.
- *Timely*: intelligence must be disseminated timeously to decision makers.

2.5.2 Competitive intelligence professionals

Firms rely on the CI professionals for the production of quality CI (Tsitoura and Stephens, 2012; Gurses and Kunday, 2014). To produce quality CI, CI professionals should have formal training in CI (Jin and Ju 2014). Jin and Ju (2014) argue that CI quality increases when CI professionals are experienced in practicing CI. They further state that the personality traits of CI professional are very vital for improvement of CI quality. CI professionals should have the right skills for CI practice, namely ability to provide quality service, professionalism and ability to share intelligence (Bexon, Stephens and Pritchett, 2002). According to Elken (1998), CI professionals should have the following skills: information handling skills, training and facilitating skills, evaluation skills and concern for customer. CI professionals should have relevant skills in order to enhance the speed of gathering information, dissemination of intelligence and improvement of quality in CI (Calof and Skinner, 1999). They must further create a culture of verifying and validating information collected for CI. According to Xinzhou, Qiang and Anqi (2012), CI professionals must be industry experts in order to filter information and information sources. According to the Michaeli and Simon (2008), CI professionals should be able to judge misinformation. Leaders of the CI units must take all necessary steps to ensure that CI is of quality

(Tsitoura and Stephens, 2012). Moreover, CI staffs are a key issue in identifying quality source of information and credibility. CI professionals must know the weakness and strengths of CI tools in order to determine CI quality (Sewdass, 2012). However, firms do not appoint CI professionals and therefore lack formal CI procedures (Gatsoris, 2012).

2.5.3 Key intelligence topics

CI professionals rely on the KITs to produce quality CI (Herring, 1999). Quality CI depends on clearly defined and unambiguous KITs (Nasri, 2011; Bartes, 2014b). KITs must be subjected to the following aspects: unambiguous; must be complete; not repeating; clearly stated and understandable; traceable; clearly updated; and verifiable (Ejaz, Nazmeen and Zafar, 2010). Good communication between CI professionals and decision makers has a positive influence on CI quality (Capatina and Vanderlinden, 2012; Arcos, 2013). KITs must be discussed in a formal meeting (Bartes, 2014b). Any change in KITs must be communicated to CI professionals immediately to ensure quality of CI (Yassine, 2014). According to Herring (1999), only intelligence needs that are of highest priority and key to the success of the organisation must be fulfilled with the scarce resources.

2.5.4 Information collection

It is widely accepted that quality CI depends on quality information (Shi, Mou and Wan, 2009; Al-Debei, 2011; Farrokhi and Pokoradi, 2012; Bartes, 2014a; Barnea, 2014). Information quality is a critical success factor for CI (Gurses and Kunday, 2014). Information should therefore be of high quality to produce quality CI (Haddadi and Dousset, 2010). Information must be checked and evaluated for quality before it is collected (Wee and LengLeow, 1994; Haataja, 2011; Zhao and Jin, 2010; Dey, Haque, Khurdiya and Shroff, 2011; Michaeli and Simon, 2008; Nasri and Zarai, 2013; Gainor and Bouthillier, 2014). Nasri (2012) and Du Toit and Sewdass (2014) conclude that quality CI requires quality information. Quality information refers to the value of information to the user (Wandersman, Chien and Katz, 2012). Quality information has the following characteristics: relevancy, accuracy, reliability and timeliness (Garcia-Alsina, Ortoll and Cobarsi'-Morales, 2013). Quality information for CI is that which is collected legally and ethically (Rapp, Agnihotri, Baker and Andzulis, 2014; Bartes, 2014). High quality information is accurate, up-to-date, timely and reliable (Yaya, Achonna and Osisanwo, 2014). Gurses and Kunday (2014) conclude that information that is not of quality is misleading.

Information sources must be evaluated for quality (Gainor and Bouthillier, 2014). Sources of information must be clearly defined in terms of the

volume, quantity, quality, access and ease of processing and cost (Nasri, 2012; Bulley, Baku and Allan, 2014). Regarding the sources of information, the following should be considered in order to achieve CI quality: price, quality, selection, service, location, reliability and stability (Priyanka, Rajagopal and Thiyagarajan, 2014). Information sourced from within the organisation tends to be of high quality (Gurses and Kunday, 2014). However, third party information should be questioned for quality (McGonagle and Vella, 2012). Teo and Choo (2001), Muller (2007), Haataja (2011) and Maune (2014) conclude that internet as a source of information for CI has a positive impact on the quality of CI. However, Wolter (2011) warns that information collected from the internet must be questioned for quality and reliability. The internet must be used with care in order to produce quality CI (Shi, Mou and Wan, 2009). The internet tends to have information overload and information overload negatively affect quality of it (Dou, Hassanaly, Quoniam and Tela, 1993).

2.5.5 Information analysis

Without information analysis there is no CI (Calof and Skinner, 1999). Without quality information analysis, there is no quality CI (Dai, Kakkonen and Sutinen, 2011). CI professionals must have good analytical skills (Adidam, Banerjee and Shukla, 2012; Gaidelys and Meidute, 2012; Sewdass, 2012). Preventive tools should be used to avoid mistakes during information analysis (Michaeli and Simon, 2008). Due to overload of information with questionable quality, information analysis must be thorough to ensure CI quality (Dou, Hassanaly, Quoniam and Tela, 1993). Information analysis is a critical phase of CI and has a huge impact on the quality of CI (Dai, Kakkonen and Sutineh, 2011; Adidam, Banerjee and Shukla, 2012). CI analyst must be involved in information collection, learn from errors and must earn trust from decision makers (Fleisher and Wright, 2010). They should not intimidate decision makers with intelligence but entice them (Fleisher and Wright, 2010). There should be more investment in information analysis in order to produce quality CI (Fleisher and Wright, 2010). Anything that would reduce the quality of analysis must be avoided (Gaidelys and Meidute, 2012).

2.5.6 Intelligence dissemination

Only quality assured CI should be disseminated to decision makers (Chiu, Chen and Chang, 2010). According to Agnihotri (2009), the speed and frequency of CI dissemination has an influence on the quality of CI. Moreover, CI that is disseminated late has no quality (Agnihotri, 2009). Lack of proper intelligence dissemination methods affects CI quality (Calof and Skinner, 1999). Dissemination methods must be secured and only accessible by authorised users (Nasri, 2011). CI must be disseminated using

methods that are regularly accessed by the decision makers to ensure that it is received on time (Fleisher and Wright, 2010).

2.5.7 Competitive intelligence unit and its location

The CI unit has the responsibility to quality control CI and it must ensure that everyone involved in the CI process is well trained (Haataja, 2011). The CI unit must constantly monitor the efforts and quality of their employees and evaluate the feedback received from decision makers (Simon, 1998). The CI unit must reward employees who produce quality CI (Sawka, 2010). When there are rewards for practicing CI, quality of CI improves (Sawka, 2010; Roche and Blaine, 2015). The location of CI unit plays a critical role in the quality of CI (Nasri and Zarai, 2013). CI unit must be located independently to avoid biasness and ensure quality (Saayman, Pienaar; De Pelsmacker, Viviers, Cuyvers and Muller, 2008). Most organisations locate their CI in the marketing/sales function. This makes CI to focus on sales and marketing and ignore strategic issues of the firm (Nenzhelele, 2012). According to Sawka (2010), decentralisation of CI has a negative impact on the quality of CI. This is because unqualified people practice CI.

2.5.8 Other competitive intelligence quality influential factors

Management support for CI has a positive impact on the quality of CI (Guynes and Cappel, 1999). Managers who support CI invest money to ensure that CI is of highest quality (Hesford, 2008). They evaluate the end product of CI (Blenkhorn and Fleisher, 2007). Firms that have management support for CI tend to practice CI formally (Bulley, Baku and Allan, 2014). Formal practice improves the quality of CI whereas informal practice compromises the quality of CI (Fatti and Du Toit, 2013; Mojarad, Zangeneh and Azad, 2014). Firms that practice CI formally have an organisational culture and constantly raise awareness for CI (Nasri, 2012; Barnea, 2014). CI awareness helps to improve the quality of CI and avoid employees from being misled by competitors (Singh and Vij, 2012; Wright, Bisson and Duffy, 2012). Stored information must only be accessed by authorised users to ensure it remains unaltered (Pellissier and Nenzhelele, 2013).

3 Methodology

This research was qualitative by nature. A total of 743 sources inclusive of journal articles, books, conference proceedings and papers were reviewed for the purpose of this research. The following keywords were used to extract relevant sources: competitive intelligence; competitive intelligence quality; quality; and quality assurance. Sources extracted range from 1993 to 2015.

To identify relevant literature, academic databases and search engines were used. A review of references in extracted sources led to more relevant sources. To ensure reliability, only peer-reviewed sources were used. The literature review was conducted between the years 2011 and 2015. The contents of the extracted sources were analysed with the aim of establishing the factors that influence the quality of CI.

4 Results

From the CI literature discussed above, the influential factors for CI quality in table 1 have been identified.

5 Discussion

CI is a critical success factor for firms around the world. For this reason, firms practice CI. However, quality is a serious concern for CI practice. This is because firms are clueless about how to improve the quality of CI. Firms are looking for ways to improve the quality of CI. It is quality CI that provides competitive advantage and aid in decision making. Quality CI helps to improve products and services quality and the quality of life. Management support CI practice when it produces quality CI. Firms have to perform quality assurance of CI. They have to be aware of factors that influence the quality of CI.

The CI process should be quality assured to ensure that it produces quality CI. Every phase of the CI process should be quality assured. Many scholars conclude that CI professionals play a critical role in CI quality assurance. They advise that firms should appoint qualified CI professionals. Moreover, scholars recommend that CI professionals should be experienced and constantly trained to produce quality CI. They advise that CI professionals should ensure that KITS from decision makers are clearly defined and unambiguous and that they should setup formal meeting with decision makers, prioritise KITS and maintain constant communication with decision makers. This ensures that any changes in KITS are communicated immediately when they happen.

After KITS have been clearly defined and prioritised, quality information must be collected. Scholars conclude that information is of quality when it is collected ethically and legally. They advise that information and all sources of information for CI should be quality checked and evaluated. They plead that information collected for CI should be accurately sorted, captured and securely stored. Only authorised users should access information stored for CI. According to scholars, this ensures that information is not altered or deleted by unauthorised individuals. Stored information is analysed to produce actionable intelligence. To ensure that produced CI is of quality, scholars recommend that CI analysts should be involved in information collection and have analytical skills. They also advise that information analysis should be thorough in order to produce CI of high quality.

Table 5. Competitive intelligence quality influential factors

Factor	Sub-factor	Source
CI professionals	CI professionals should have formal training in CI	Jin and Ju (2014); Bexon, Stephens and Pritchett (2002); Elken (1998); Calof and Skinner (1999); Xinzhou, Qiang and Anqi (2012); Michaeli and Simon (2008); Tsitoura and Stephens (2012); Sewdass (2012)
	CI professionals should be experienced in CI practice	Jin and Ju (2014)
	Firms should appoint qualified CI professionals	Gatsoris (2012)
Key Intelligence Topics (KITs)	KITs should be clearly defined and unambiguous	Nasri (2011); Bartes (2014b); Herring (1999); Ejaz, Nazmeen and Zafar (2010)
	KITs should be discussed in a formal meeting between CI professionals and decision makers	Capatina and Vanderlinden (2012); Arcos (2013); Bartes (2014b)
	Changes in KITs are communicate to CI professionals by decision makers immediately when they happen	Yassine (2014)
	KITs are prioritised	Herring (1999)
Information collection	Information is collected legally and ethically	Nasri (2011); Rapp, Agnihotri, Baker and Andzulis (2014); Bartes (2014)
	Information sources should be quality checked and evaluated	Gainor and Bouthillier (2014); Nasri (2012); Bulley, Baku and Allan (2014); Priyanka, Rajagopal and Thiyagarajan (2014); Gurses and Kunday (2014); McGonagle and Vella (2012); Teo and Choo (2001), Muller (2007), Haataja (2011); Maune (2014); Wolter (2011); Shi, Mou and Wan (2009); Dou, Hassanaly, Quoniam and Tela (1993); Dai, Kakkonen and Sutinen (2011)
	Information should be quality checked and evaluated	Shi, Mou and Wan (2009); Al-Debei (2011); Farrokhi and Pokoradi (2012); Bartes (2014); Barnea (2014); Gurses and Kunday (2014); Haddadi and Dousset (2010); Nasri (2012); Du Toit and Sewdass (2014); Wandersman, Chien and Katz (2012); Garcia-Alsina, Ortoll and Cobarsi'-Morales (2013); Yaya, Achonna and Osisanwo (2014); Gurses and Kunday (2014); Wee and LengLeow (1994); Haataja (2011); Zhao and Jin (2010); Dey, Haque, Khurdiya and Shroff (2011); Michaeli and Simon (2008); Nasri and Zarai (2013); Gainor and Bouthillier (2014)
Information sorting, capturing and storage	Collected information should be accurately sorted, captured and securely stored	Pellissier and Nenzhelele (2013)
Information analysis	CI professionals should have good analytical skills	Adidam, Banerjee and Shukla (2012); Gaidelys and Meidute (2012); Sewdass (2012); Michaeli and Simon (2008)
	Information analysis should be thorough	Dou, Hassanaly, Quoniam and Tela (1993); Dai, Kakkonen and Sutineh (2011); Adidam, Banerjee and Shukla (2012); Fleisher and Wright (2010); Gaidelys and Meidute (2012)
	CI analyst must be involved in information collection	Fleisher and Wright (2010)
Intelligence dissemination	Intelligence should be disseminated timeously	Agnihotri (2009)
	Intelligence should be disseminated through secure and regularly accessible methods	Calof and Skinner (1999); Nasri (2011); Fleisher and Wright (2010)

Table 6. Competitive intelligence quality influential factors (continued)

Factor	Sub-factor	Source
CI unit and location	CI unit should ensure that everyone involved in the CI process is well trained	Haataja (2011)
	CI unit must constantly monitor the efforts and quality of their employees and evaluate feedback received from decision makers	Simon (1998)
	CI unit should reward employees who produce quality CI	Sawka (2010); Roche and Blaine (2015)
	CI unit should be located independently	Nasri and Zarai (2013); Saayman, Pienaar; De Pelsmacker, Viviers, Cuyvers and Muller (2008); Nenzhelele (2012); Sawka (2010)
Management support	Management should support CI practice	Guynes and Cappel (1999); Hesford (2008); Blenkhorn and Fleisher (2007)
Formalisation of CI practice	CI should be practiced formally	Bulley, Baku and Allan (2014); Fatti and Du Toit (2013); Mojarad, Zangeneh and Azad (2014)
CI awareness	CI awareness should be raised throughout the organisation	Nasri (2012); Barnea (2014); Singh and Vij (2012); Wright, Bisson and Duffy (2012)

Produced actionable intelligence should be disseminated to decision makers. Quality CI is that which is disseminated to decision makers timeously. When intelligence is disseminated late, it lacks quality and it is therefore useless. To ensure quality, scholars recommend that CI should be disseminated using secure and regularly accessible dissemination method. This ensures that intelligence is accessed by the right people at the right time. Therefore, the CI unit must ensure that everyone involved in CI practice is well trained to produce and disseminate quality CI. Scholars conclude that the CI unit should reward employees who produce quality CI. Moreover, scholars advise that CI unit should be located independently to avoid biasness. The CI unit should evaluate the feedback of decision makers and incorporate it the CI process.

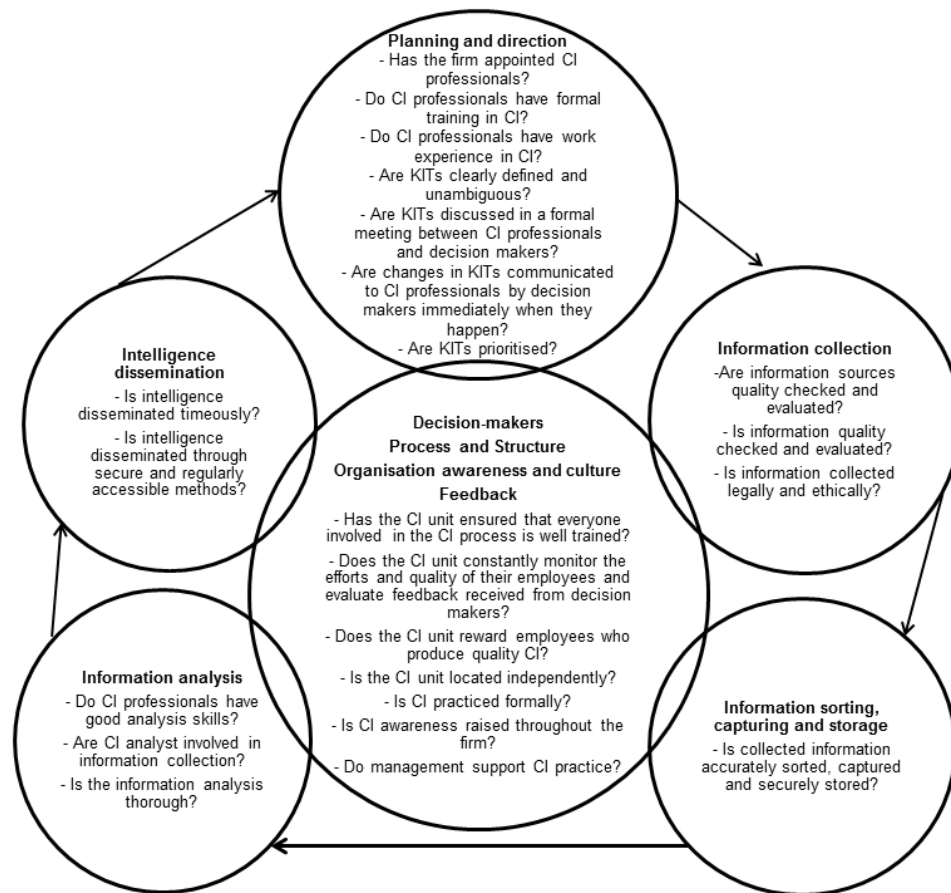
To ensure quality, scholars commend that the CI unit should be supported by management. This is because management invest in CI as a way to show support. This makes formalisation of CI easier and formalisation improves the quality of CI. To ensure quality of CI, scholars conclude that firms should continuously raise awareness of CI throughout the organisation. All these CI quality influential factors are incorporated into the CI process model to produce the CI quality assurance model in figure 1 below. The sub-factors are included as questions in the model. CI is of high quality when the answers to all the questions are yes and it is of low quality when the answers are no.

6 Conclusion

Whilst there are concerns about the quality of CI, the quality of CI can be improved. This can be done through quality assurance. Firms must consider all factors that affect quality when practising CI. They must appoint and train qualified and experienced CI professionals. Firms must ensure that KITS are clearly defined, unambiguous, prioritised and discussed in formal meetings. Moreover, firms must ensure that changes in KITS are communicated to CI professionals immediately when they happen. In addition, firms should ensure that information and information sources are quality checked and evaluated. They should ensure that information is collected legally and ethically. CI professionals should ensure that collected information is accurately sorted, captured and securely stored.

Firms can quality assures CI by ensuring that information is analysed by qualified analysts who have been involved in information collection. The quality of CI is assured when it is disseminated timeously through secured and regularly accessible dissemination methods. Firms should ensure that every employee involved in CI development is well trained, evaluated and rewarded for quality CI. Moreover the CI unit should evaluate the feedback from decision makers and incorporate it into the CI process. Managers of firms must support CI practice. Firms must practice CI formally and continually raise CI awareness. The implementation of the proposed CI quality assurance model in figure 1 will improve the quality of CI, ensure continual support from management and continual practice of CI.

Figure 4. Competitive intelligence quality assurance conceptual model



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