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Development of a competitive intelligence maturity model: Insights from Moroccan companies

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ABSTRACT This paper aims to assess the maturity level of competitive intelligence (CI) in Moroccan companies, so as to improve theirs practices, and to justify their investment in competitive intelligence. To do so, we have identified the maturity model based on a comprehensive review of recent literature. The objectives of this paper are threefold: (1) to determine the major purposes of a CI maturity model (CIMM), (2) to identify the types of CI dimensions and levels of maturity, (3) to evaluate Moroccan companies in terms of CI practice. Our approach is to develop a conceptual framework of the CI maturity model that articulates (1) dimensions of CI, and (2) maturity levels of CI. We note that little attention has been given in previous research to how CI is actually conducted in Moroccan companies. For this purpose, an empirical study was conducted. The results discuss various perspectives and insights from a competitive intelligence maturity model point of view in the Moroccan context. The results show that the majority of the Moroccan companies are in an early stage of the CI levels, where the CI practice is only to employ environment scanning and the competition in the business environment is not intense. We also note the absence of CI structure at this level. Most of these Moroccan companies are not able to cope with changes in the business environment. The CI systems and processes are released on an irregular basis. This study is the first to investigate the Competitive Intelligence Maturity Model (CIMM) in the Moroccan context. The findings of this research show that there are six CI dimensions (CI culture of an organization; CI deliverables; CI sourcing; CI cycle; CI investment in terms of resources; CI users and CI application) that should be taken into account in CI implementation with regard to the CI level (early, mid, world class).

KEYWORDS Competitive intelligence, maturity model, information, competitive advantage, moroccan companies

1. INTRODUCTION

According to Du Toit (2003), enterprises today operate in a global market in an increasingly turbulent and volatile environment and must withstand competitive pressures both from other producers or suppliers and from new technologies and products/services, otherwise they will be disrupted. Corporate management therefore needs input from competitive information and has to manage and utilize this information. Competitive intelligence (CI) pulls together data and information from a very large and strategic view, allowing a company to predict or to forecast what is going to happen in its competitive environment (Bose, 2007).

Despite the increasing interest in CI, two critical gaps emerge in the literature. First, there are few empirical works assessing the maturity of a firm's competitive intelligence activities. Most literature addressing this issue has been focused on the measurement of competitive intelligence in the context of the developed markets of the USA, Canada and Europe (Wright & Calof, 2006; Gainor & Bouthillier, 2014; Bose, 2007).

The objectives of this paper are twofold. First, a description of the current knowledge regarding the maturity model of CI is derived from the literature. Second, the paper makes a contribution to the currently empirical knowledge on the topic, particularly in the Moroccan context.

The central question that will be addressed is: What are the dimensions of CI involved in the assessment of a CI maturity model?

This paper is organized as follows: in the first section, we present the state of the art regarding competitive intelligence and maturity models. Then, in the second section, we describe the research methodology. In the third section, we discuss the main results and the important lessons learned from the empirical study.

2. BACKGROUND

The literature reviewed for this study includes recent literature on competitive intelligence and CI maturity models.

2.1 Competitive intelligence

The term competitive intelligence (CI) has been around for about 50 years (Luh, 1958; Wilensky, 1967). Over time, the definition for CI has broadened to include not only organizational and business processes, but also technological processes.

For the purpose of this research, and according to Gainor & Bouthillier (2014), CI is described as the collection, analysis and dissemination of publicly available, ethically and legally obtained relevant information as a means of producing actionable knowledge. Actionable knowledge is then a basis for the improvement of corporate decision-making and action. The overall goal of CI is to identify and act upon signals, events and discernible patterns, which can inform and enhance the organization's decision-making activities (Wright et al. 2009).

Bose (2008) said that the most common benefit of CI is its ability to build information profiles that helps a company to identify its competitor's strengths, weaknesses, strategies, objectives, market positioning and likely reaction patterns. These information profiles include data needed to effectively identify, classify and track competitors and their behavior.

In fact, the assessment of CI is considered an important issue. Several scholars have called for research into how CI might be assessed. According to the literature (Gainor & Bouthillier, 2014; Heppes & Du Toit, 2009), the maturity model can be used to assess the relevance of CI within an organization.

The conceptual challenges assessing CI are: understanding what is being assessed, the reliability and validity of the maturity model selected, and how to critically evaluate the maturity of CI.

2.2 Maturity models

In this section, we will discuss the basic building blocks of maturity models. Interestingly, Albliwi et al. (2014) mentioned that there is a lack of consensus on the definition of a maturity model, and most of the definitions have only described the capability levels, behaviors and the objectives of the model.

Accordingly, due to the lack of an accepted general definition, it is necessary to have a closer look at maturity models from three perspectives (Wendler, 2012):

- an understanding of basic terms like maturity and capability
- purpose, application, and benefits
- structure and components

For Becker et al. (2009), a maturity model consists of a sequence of maturity levels for a class of objects. It represents an anticipated, desired, or typical evolution path of these objects shaped as discrete stages. The basic idea behind the maturity model is that higher levels of maturity indicate increased capabilities in managing the specific domain or process with better competitiveness and thus increasing your chance of sustained success. However, if all players are equally benchmarked of course there is no edge or advantage anymore, but then the process becomes imperative just to hold your position among your peers (Rapaccin et al, 2013),

The concept of maturity models is increasingly being applied within the field of information systems (IS), both as an approach for organizational development and as a means

of organizational assessment (Mettler & Rohner, 2009).

In fact, we can find many maturity models in the relevant literature. One of the most influential maturity models is the Capability-Maturity Model (CMM), proposed in November 1986 by the Software Engineering Institute at Carnegie Mellon and subsequently evolved into the Capability Maturity Model Integration (CMMI). The CMMI is based on knowledge acquired from software-process assessments and extensive feedback from both industry and government (Paulk et al, 1993). Since then, the maturity model has been expanded into other contexts. Moreover, maturity models have been applied to several domains such as business process management (Röglinger, Pöppelbuß, & Becker, 2012), business intelligence (Raber, Winter and Wortmann, 2012), knowledge management (Serna M, 2012), supply chain management (Lockamy & McCormack, 2004) and social media (Geyer & Krumay, 2015).

Table 1 Maturity model methodologies.

Maturity model methodology steps	**Source**
1. Initial decisions 2. Sources analysis 3. Strategy for development 4. Model design 5. Draft model development 6. Draft model validation 7. Model consolidation	Salviano et al. (2009)
1. Identify problem and motivate 2. Define objectives of a solution 3. Design and development 4. Demonstration 5. Evaluation 6. Communication	Peffers et al.(2007)
1. Scope 2. Design 3. Populate 4. Test 5. Deploy and Maintain	Bruin et al. (2005)
1. Comparison with existing maturity models 2. Iterative Procedure 3. Evaluation 4. Multi-methodological Procedure 5. Identification of Problem Relevance 6. Problem Definition 7. Targeted publication of results	Hevner et al. (2004)

Whilst maturity models are high in number and broad in application, there is little documentation on how to develop a maturity model that is theoretically sound, rigorously tested and widely accepted (Bruin et al., 2005). In this vein, Bruin et al., (2005) proposed, in order to overcome this problem, six phases to develop a maturity model: scope, design, populate, test, deploy and maintain. Becker et al. (2009) adopted Hevner et al. (2004) design guidelines to formulate the maturity model framework that consists of seven phases: comparison with existing maturity models, iterative procedure, evaluation, multi-methodological procedure, identification of problem relevance, problem definition, targeted publication of results. Peffers et al. (2007) proposed a design science process model, which essentially creates a methodology for following the seven guidelines. This process methodology involves six key steps: identify the problem and motivate, define objectives of a solution, design and development, demonstration, evaluation, communication.

Other authors have attempted to define sequential steps to guide the development of a maturity model. Table 1 summarizes the main activities described in each methodology.

De Bruin et al. (2005) point out that the development of a maturity model depends on the purpose for which a model may be applied including whether the resulting maturity assessment is descriptive, prescriptive or comparative in nature. If a model is purely descriptive, the application of the model would be seen as a single point encounter with no provision for improving maturity or providing relationships to performance. A prescriptive model, on the other hand, provides emphasis on the domain relationships to business performance. Finally, a comparative model enables benchmarking across industries or regions. A model of this nature would be able to compare similar practices across organizations in order to benchmark maturity within disparate industries.

2.3 Maturity models for CI

Despite the vast number of applications in different management domains, to the best of our knowledge, no maturity models to assess the capabilities of CI has been developed yet. This paper aims to fill this gap. For these reasons, the maturity model for CI respects the design principles proposed by Hevner et al. (2004) in their framework. In the same vein, Tej Adidam et al. (2012) distinguished three levels of CI maturity: primitive level, intermediate level and advanced level.

The first step of the Hevner et al. (2004) approach is to review, compare and contrast the existing maturity models in CI. From the

literature, we note that Heppes & Du Toit (2009) developed the only CI maturity model.

Gainor & Bouthillier (2014) mentioned that the assessment of CI would need to capture CI usage, the outputs in relation to decision-making and decision outcomes. To this end, we propose, according to our literature review, to assess CI practices from eight dimensions that are presented in Table 3.

Table 2 CI maturity model.

Authors	Dimensions	Levels	Industry
Heppes & Du Toit (2009)	• Deliverables and capabilities • Analytical products • Relationship with management • Sources of information • Personnel • Skills & Training	• Early stage CI • Mid-level CI capability • World-class CI capability	Retail bank

Table 3 CI dimensions.

CI dimensions	Source
CIdim1. CI Strategy and Culture	Comai et al (2005), Bose (2007), Heppes & Du Toit (2009), Oubrich (2011)
CIdim2. CI Relationship with management	Heppes & Du Toit (2009)
CIdim3. CI Structure	Calof (2002), Comai et al (2005), Bose (2007), Heppes & Du Toit (2009)
CIdim4. CI Resources	Comai et al (2005), Bose (2007), Heppes & Du Toit (2009)
CIdim5. CI System	Calof (2002), Comai et al (2005), Bose (2007), Heppes & Du Toit (2009), Oubrich (2011)
CIdim6. CI Deliverables and capabilities	Heppes & Du Toit (2009)
CIdim7. CI Analytical products and CI Use	Bose (2007), Heppes & Du Toit (2009)
CIdim8. CI Impact	Bose (2007), Heppes & Du Toit (2009), Seng Yap & Abdul Rashid (2011), Oubrich (2011)

3. EMPIRICAL STUDY

3.1 Research Methodology

We think that CI is still in an embryonic stage in Morocco but is widely thought by those in the business to be growing rapidly. However, there are practically no empirical research papers at hand. This paper aims to offer an insight into the assessment of CI and by doing so, to remedy the lack, we noted, of research in the CI field. An empirical research study was developed in order to assess CI in Moroccan companies, in terms of the eight dimensions and three levels of maturity (listed on tables 2 and 3).

3.2 Data collection

CIEMS Research launched between September 2015 and December 2016, the first barometer on CI in Morocco, and e-mail, followed by direct contact were used to invite the firms to join our CI research program. The questionnaire was sent to the sample with the objective of evaluating CI in Moroccan companies, in terms of the eight dimensions and three levels of maturity.

150 questionnaires were sent, resulting in 57 usable responses (38%). The industry split was information technologies and telecommunications (12.5%), agriculture and fishing industry (8.9%), finance, banking and insurance (8.9%), media and communication (3.6%), construction industry (3.6%), transport and logistic (1.8%), manufacturing industry (1.8%), oil and gas industry (1.8%), with sales reported in excess of 3 million MAD by 75%. More than 40% of respondents have a position

as senior/middle management, and 10.7% are at director level.

Moreover, 69.40% of the respondents have experience in CI between 1 and 5 years, and the rest of the respondents, which represent 30.60% have experience in CI for more than 6 years. This shows that CI in Morocco is a young field as mentioned earlier.

4. DATA ANALYSIS AND INTERPRETATION

On looking back on the research question posed at the start of this study, it is possible to find the following results and analysis, which show the most common responses from the Morocco companies in terms of CI practice assessment in the eight dimensions.

4.1 CI Strategy and Culture

The perceived need for a CI strategy is determined by the intensity of competition in the market serviced by the company. If there are no competitors in the domestic market, there may be no point in wasting resources on CI. The companies that embrace CI are those which experience the most intense competition or where the competitive environment is changing rapidly. The overall goal of CI therefore is to identify and act upon signals, events and discernable patterns, which can inform and enhance the organization's decision-making activities (Wright el al, 2009).

In this same vein, CI strategy assessment will depend on the level at which companies respond to change in their business environment and CI practices. According to Oubrich (2009), we can distinguish between two types of CI strategy: defensive and offensive. CI defensive strategy includes mainly scanning environment and protection assets; meanwhile CI offensive strategy includes an influence approach.

As for the future, there is no doubt that competitive pressure will continue to intensify in all markets. This means that the companies will have to shift their CI strategy from defensive to offensive.

The findings of our study revealed that Moroccan firms practiced CI at many different levels with regard to the nature and extent of the competition (very intense, intense, not intense). However, when the competition is not intense, the practice of CI is limited to scanning the environment rather than assets protection or influence. As the competition becomes fierce and more aggressive, companies should empower themselves with an offensive CI strategy.

4.2 CI Relationship with management

The purpose of this dimension is to gain an understanding of the CI activities that take place within organizations and how they are supported by management. According to Pellissier and Kruger (2011), there is a growing proportion of managers using CI in their strategic planning and decision-making.

Based on the results obtained, we found that the top management linked CI to protect their intangible assets (24.76%), detection of opportunities and threats (25.52%), coordination of activities (23%) and coordination of strategies (23.08%). Moreover, CI helped them to stay informed about the internal and external environment (24.66%), production of new knowledge (23.70%), making better decisions (24.6%) and sale goals (23.81%). Finally, the use of CI can lead to innovation (24.48%) and competitive advantages (25.17%).

There is also an agreement that CI is clearly widespread across all management levels, as Table 4 shows.

Table 4 Management level of respondents.

Management level	% of respondents
Top management	26.66
Strategy department	16.45
Marketing department	15.79
R&D department	11.18
Commercial department	9.21
Finance and administrative department	8.55
Sale department	6.58
Logistic and distribution department	5.26
Export department	1.32

4.3 CI Structure

The CI system is often influenced by the degree of its formalization. It can be described as a formalized structure when it is governed by rules and procedures (Cohen, 2004). The results of this study show that more than half of Moroccan companies surveyed admit to having a formalized structure. The structure of their CI system differs depending on the degree of progress of scanning. So, the more the CI structure is developed, the more the CI approach becomes offensive.

Indeed, the empirical study revealed that Moroccan companies with 1 to 5 years of

experience in CI, are satisfied with their CI structure. Beyond 10 years of experience in CI, the company adopts a proactive CI approach for purposes of influence and lobbying.

According to the empirical data, it should be noted that whatever approach is adopted, most companies only hire people with a higher education degree in order to develop their CI structure (80% have a masters' degree).

4.4 CI Resources

Watchers (Martinet and Marti, 1996), trackers (Lesca, 1997), observers (Jakobiak, 1998), and analysts (Knauf, 2005), are people in charge of the collection, analysis and dissemination of information to turn it into intelligence in order to have better decisions and actions (Bulinge, Agostinelli, 2005).

Therefore, CI professional should have different types of additional skills (Salvetat, 2001) such as mastering techniques of acquisition and validation of information sources and analysis, complementary skills related to the management of IT tools, and openness and interpersonal skills (Gilad, 1986).

This survey reveals that the majority of the CI professionals surveyed hold a higher education diploma, most frequently a masters' or PhD. In addition, more than half occupy a managerial function, which reflects that Moroccan companies increasingly recognize the level of skills of CI professional.

4.5 CI System

Hassid et al. (1997) indicate that information collection involves gathering information, identifying available formal and informal sources and analyzing the practical conditions of access and the technical arrangements for better collection. Effective environmental scanning must be integrated into several formal and informal sources, both internal and external.

Formal sources or open sources are those where there is hard support that include the following categories: press, media, books, databases, and patents.

Informal sources or closed sources mainly reside in contacts with people such as customers, suppliers, competitors, laboratories, and trade fairs. This type of source often requires the mobilization of a multidisciplinary network of human resources inside and outside the company to communicate competitive information (Gilad, 1995).

The survey reveals that the majority of CI professionals interviewed integrate the web into their scanning panel. The scanning from the ground includes trade show, seminars, and meetings with suppliers. The trend confirmed by this survey is the diversity and complementarity of information channels (web and ground information).

4.6 CI Deliverables and capabilities

Levet (2001), shows that diffusion and dissemination of information to the people involved is an essential step in the CI cycle of Martinet and Marti, (2001). Dumas (2008) proposes a typology of three products of environmental scanning that intended to stimulate reflection and to help decision-making. It distinguishes between alert signals (warning alerts), one-off deliverables (briefing notes, scanning reports) and regular deliverables (newsletter, actors mapping).

The CI professional should choose the most appropriate support and diffusion of information, and the frequency between a real-time diffusion of information. They should also analyze delayed information dissemination.

Our study shows that Moroccan companies are willing to disseminate information. Indeed, email alerts are the best-used channel, followed by newsletters. The companies also rank the presentation and scanning report highly.

The findings in this study indicate that the information is not significantly processed by the Moroccan structures, and it is still related to punctual consumption. This explains the early stage of the CI practice in the Moroccan context.

4.7 CI Analytical products and CI Use

One the most challenging tasks of CI use and CI analytical product methods for the professional is to analyze the information in the dynamic and competitive context as information changes and updates frequently.

Some research observed that analysis is critical to CI use and CI analytical product methods as it generates some kind of intelligence for the firm (Calof and Dishman, 2008). Tej Adidam et al., (2009) make sure that the critical part of the CI process (mainly CI use and CI analytical product methods) is the basis of this analysis and dissemination of intelligence to the relevant firms' users. Therefore, the relevance and quality of this analysis is very important to make effective

decisions. It is understood that this relevance and quality are different among CI early level, CI mid-level and CI world-class level (Heppes & Du Toit 2009, Tej Adidam et al., 2012).

We can state that the highest level is the sophisticated analytical techniques, which in turn generate better intelligence output (Dishman and Calof, 2008) and lead to better CI performance. In line with this, our empirical study shows that where information is transformed into knowledge more efficiently and effectively, companies move ahead to the world class CI practice, and the more they tend to use CI methods such as crosscheck analysis, competition, value chain analysis. However, for the early stage of CI, the companies still use the general methods (such as Mckinsy Matrix, patent analysis, PESTEL Analysis) to generate intelligence. The mid-level is better developed than the early stage in terms of CI maturity, because they use both general and specific methods (such as value chain analysis and competition analysis).

Table 5 : CI Analytical product methods (in terms of number of occurrences).

Early Level		**Mid-level**		**World class**	
Mckinsy Matrix	100	Value Chaine Analysis	98	Cross-Check Analysis	37
Patente Analysis	97	Competition Analysis	95	Competition Analysis	33
PESTEL Analysis,	96	SWOT	93	Financial Analysis	30
BCG Matrix	90	Partner analysis	91	Value Chaine Analysis	27
Scenario Analysis	88	Resources and competence Analysis	91	Scenario Analysis	23
Resources and competence Analysis	74	Cross-Check Analysis	88	Partner analysis	21
Cross-Check Analysis	70	PESTEL Analysis,	75	SWOT	19
Financial Analysis	67	Scenario Analysis	72	PESTEL Analysis,	19
SWOT	65	BCG Matrix	70	Resources and competence Analysis	19
Partner analysis	58	Financial Analysis	67	BCG Matrix	16
Value Chaine Analysis	58	Patente Analysis	57	Mckinsy Matrix	14
Competition Analysis	56	Mckinsy Matrix	42	Patente Analysis	13

4.8 CI Impact

CI attitudes impact managerial CI and goal setting. Different levels and modes (inactive or passive, reactive or proactive; El Sawy, 1985; Jain, 1984) of CI attitudes have important implications for organizations. This is demonstrated in the fact that while some managers obtain CI passively (what we called the early stage CI level), others (mid-CI level and world class CI level) engage in an active search for CI. Opportunities or threats can arise from many different market sectors.

Managers with a CI high level tend, in a strategic vision, to be engaged in a proactive CI scanning. They rigorously try to scrutinize situational variables and seek opportunities from the market. More specifically, they are engaged to be successful, to control the environment, and to be innovative and create knowledge, have a strong motivation to conduct frequent and regular scanning for CI.

Between these two kinds of CI attitudes, we identified some managers who are tending to be in the world-class level but still acting only in a tactical way.

Our findings show clearly that managers in the early CI level are more oriented towards protecting their assets (24.79%), coordinating activities and detecting opportunities and threats in the market.

Table 6 Early CI level data (in terms of number of occurrences).

	Early CI level		
	Protect intangible assets	Detection of opportunities and threats	Coordination of activities
Top management	24.79	25.52	23.00
Strategy department	15.70	16.55	16.00
Marketing department	15.70	15.17	13.00
RD department	11.57	11.03	10.00
Commercial department	9.09	9.66	10.00
Finance and administrative department	9.92	8.97	11.00
Sale department	6.61	6.90	8.00
Logistic and distribution department	5.79	5.52	8.00
Export department	0.83	0.69	1.00
	100.00	100.00	100.00

Table 7 : Mid CI level data (in terms of number of occurrences).

	Mid CI level	
	Coordination of strategies	Stay informed about internal and external environments
Top management	23.08	24.66
Strategy department	16.92	16.44
Marketing department	14.62	15.75
RD department	11.54	11.64
Commercial department	10.00	9.59
Finance and administrative department	9.23	8.90
Sale department	7.69	6.85
Logistic and distribution department	6.15	5.48
Export department	0.77	0.68

In the mid CI level, managers have more behaviors that are active in regards to the market and try to move from a passive CI level to a proactive CI level.

The world-class CI level shows the importance of a proactive strategy. Indeed, the top management, and the strategy and the marketing departments emphasize that CI models help to make better decisions (33%), more innovation (35%) and influence (29%) on the products, services and the activities to generate more sales (25%). In this world class CI level, managers agreed that the ultimate goal is also to create a competitive advantage (37%).

5. CONCLUSION

Presently, we are unaware of any significant literature about how to define and develop a CI maturity model. The initial research published in Aslib Proceedings, Vol. 61 Iss: 1 (Du Toit & Heppes, 2009), discussed the possible conceptual frameworks.

Based on Du Toit & Heppes, (2009) and the findings of our research, we should look at a variety of different characteristics of a company in order to determine the CI maturity model of an organization. The main dimensions of CI evaluated in this research, are presented as follows:

1- CI culture of an organization
2- CI deliverables
3- CI sourcing
4- CI cycle
5- CI investment in terms of resources
6- CI users and CI application

Table 9 shows what this CI maturity model looks like, and the increasing levels of maturity. A company progresses from the early stage (basic level) towards the world-class (high level), by increasing its competitive maturity in the eight areas defined above. As a company does so, it also finds that it enjoys an increasing competitiveness and thus increasing influence in a given market.

Table 9 gives a summary of what one might expect to find for each of the eight evaluation areas (CI dimensions) at each of the different CI levels of maturity. By examining a company's CI maturity level, dimensions of improvement can be identified that will help companies to move to the next step and increase competitiveness. It becomes a straightforward exercise to evaluate the organization and to identify areas for improvement.

Table 8 World class CI level data (in terms of number of occurrences)

World class CI level						
	Making better decision	Innovation	Influence	Generate sale	Competitive advantage	Production of new knowledge
Top management	33	35	29	25	37	32
Strategy department	22	23	17	16	24	22
Marketing department	21	22	16	15	23	21
RD department	16	17	12	12	17	16
Commercial department	13	14	11	10	14	12
Finance and administrative department	13	13	13	12	13	13
Sale department	9	10	9	7	10	10
Logistic and distribution department	8	8	7	8	8	8
Export department	1	1	1	0	1	1

Table 9 CI maturity model.

CI dimension	Early stage CI	Mid-level CI capability	World-class CI capability
CI Strategy and Culture	- The competition in the business environment is not intense - CI practice is only about environment scanning - Absence of CI structure - Not able to cope with changes in the business environment	- The competition in the business environment is intense - CI practices are about environment scanning and asset protection - Absence of CI structure - Able to cope with changes in the business environment	The competition in the business environment is very intense - CI practices are about environment scanning, asset protection, and influence - Existence of CI structure - Able to drive the change in the business environment
CI Relationship with Management	CI output is used by marketing or sale and commercial departments	CI output is used by export department	CI output is used by top management or strategy department
CI Structure	- The age of a CI unit within organization is between 0-5 years - Scanning environment activity exists - CI team has less education (most with less than bachelor degree) and less years of experience	- The age of CI unit within organization is between 6-10 years - Scanning environment and protection asset activities exist - CI team is composed of people who have bachelor's degrees and fewer years of experience	- Environment scanning, assets protection, and influence activities in existence for more than 10 years - CI team has advanced degrees (mainly masters or PhD) and several years of experience
CI Resources	CI human resources have less education (most with less than bachelor degree), often lower-level managers	CI human resources are composed of people who have bachelor's degrees, often senior/middle managers	CI human resources are composed of people who have masters or PhD degrees, often top managers
CI System	Few information gathering sources utilized annually	Several information gathering sources utilized monthly	Several information gathering sources utilized daily
CI Deliverables and Capabilities	The CI process output released annually	The CI process output released monthly	The CI process output released daily
CI Analytical Products and CI Use	Few analytical product methods and CI deliverables utilized annually	Several analytical product methods and CI deliverables utilized monthly	Several analytical product methods and CI deliverables utilized daily
CI Impact	CI impacts operational side of an organization, mainly protection of their assets, coordination of their activities, information about the change in the environment.	CI impacts tactical side of an organization, mainly access to new markets, coordination of their strategies.	CI impacts strategic side of an organization, mainly allowing companies to make better decisions, create new knowledge on their products, services and processes.

We successively analyze the limits of this research in the theory, methodology and the results obtained. From a theoretical point of view, this research raises some key questions related to the use of maturity models as a framework for understanding our research problem. However, the maturity models did not describe the processes themselves; they describe the characteristics of good processes, thus providing guidelines for companies developing their own sets of processes.

According to our empirical study, CI in Morocco is still a relatively young practice, therefore, it is very hard to assess the companies concerning levels of the maturity models described in this paper, and that is why our sample was very small. The size of this sample was insufficient for the research purpose, and did not allow us to draw generalized conclusions, but it can be considered representative of all Moroccan companies. In the same vein, as most companies did not respond to our questionnaire for confidentiality reasons, there was no real strategy for the choice of companies.

The findings of this paper indicate that further research related to competitive intelligence maturity models can be conducted. For instance, future research should be undertaken through in-depth case studies. Then, it will be worthwhile to generalize the results of the study to other companies to finally develop a holistic maturity model that takes into account the characteristics of each company.

This study is the first to investigate CI in Morocco. It was quantitative in nature, and further research is needed to better understand

the current state of CI in Morocco and explore possible relationships between CI maturity levels and firm performance in the Moroccan context.

6. REFERENCES

Albliwi, S.A. et al, (2014), Critical literature review on maturity models for business process excellence, *Proceedings of the 2014 IEEE IEEM*.

Bateman, T.S, Crant, J.M. (1993), "The proactive component of organizational behavior: a measure and correlates", *Journal of Organizational Behavior*, Vol. 14, pp. 103-18.

Beal, R.M. (2000), "Competing effectively: environmental scanning, competitive strategy, and organizational performance in small manufacturing firms", *Journal of Small Business Management*, Vol. 38, pp. 27-47.

Becker, J., Knackstedt, R., and Pöppelbuß, J. (2009), "Developing Maturity Models for IT Management – A Procedure Model and its Application", *Business & Information Systems Engineering*, 1(3), pp. 213- 222.

Bose R. (2007), "Competitive intelligence process and tools for intelligence analysis", *Industrial Management & Data Systems*, Vol. 108 No. 4, 2008 pp. 510-528

Bose, R. (2008), "Competitive intelligence process and tools for intelligence analysis", *Industrial Management & Data Systems*, Vol. 108 No. 4.

Bulinge, F. and Agostinelli, S. (2005), L'analyse d'information : d'un modèle individuel à une culture collective,, *R3I*, p. 1-18.

Bulinge, F. (2013), "Analyse d'information et construction de connaissance : une théorie de l'intelligence informationnelle appliquée au renseignement et à l'intelligence économique", HDR, Université de Poitiers.

Calof, J., Dishman, L, (2008), "Competitive intelligence: a multiphasic precedent to marketing strategy", *European Journal of Marketing*, Vol. 42 Iss: 7/8, pp.766 – 785

Calof , J.L. and Wright, S. (2008), "Competitive Intelligence A Practitioner, Academic and Inter-disciplinary Perspective", *European Journal of Marketing*, 42(7/8), 717-730

Carr, J.C, Lopez, T.B. (2007), "Examining market orientation as both culture and conduct: modeling the relationships between market orientation and employee responses", *Journal of Marketing Theory & Practice*, Vol. 15 No. 2, pp. 113-25.

Cervera, A., Molla, A. and Sanchez, M. (2001), "Antecedents and consequences of market orientation in public organizations", *European Journal of Marketing*, Vol. 35 Nos 11/12, pp. 1259-86.

Cohen, C. (2004), Veille et intelligence stratégiques, Hermes science publication, Lavoisier, Collection Management, finance et gestion, 2004

Covin, J.G, Covin, T.J. (1990), "Competitive aggressiveness, environmental context, and small firm performance", *Entrepreneurship Theory and Practice*, Summer, pp. 35-50.

De Bruin, T., Freeze, R., Kulkarni, U., and Rosemann, M. (2005), "Understanding the Main Phases of Developing a Maturity Assessment Model", in *ACIS 2005 Proceedings*.

De Bruin T., Rosemann M., Freeze R., Kulkarni U. (2005), "Understanding the main phases of developing a maturity assessment model". *Proceedings of the Australasian Conference on Information Systems* (ACIS), Sydney.

Du Toit, A.S.A. (2003), "Competitive intelligence in the knowledge economy : what is in it for South African manufacturing enterprises? " *International Journal of Information Management* 23 (2003) 111–120

El Sawy, O.A. (1985), "Personal information systems for strategic scanning in turbulent environments: can the CEO go on-line? ", *MIS Quarterly*, March, pp. 53-60.

Entrialgo, M., Fernandez, E. and Vazquez, C.J. (2000), "Characteristics of managers as determinants of entrepreneurial orientation: some Spanish evidence", *Enterprise & Innovation Management Studies*, Vol. 1 No. 2, pp. 187-205

Gainor, R; Bouthillier, F. (2014), "An evaluation framework for outcome and impact measures", *77th ASIS&T Annual Meeting*, October 31-November 5, 2014, Seattle, WA, USA.

Geyer, S & Krumay, B. (2015), "Development of a Social Media Maturity Model – A grounded theory approach", *48th Hawaii International Conference on System Sciences*.

Gilad, B. (1995), "Do we matter? ", *Competitive Intelligence Review*, June.

Gilad, T. (1986), "Business intelligence : the quiet revolution", MIT, *Sloan Management Review*, pp. 53-61, 1986

Heppes, D. & Du Toit, A. (2009), "Level of maturity of the competitive intelligence function: Case study of a retail bank in South Africa", *Aslib Proceedings: New Information Perspectives* 61(1), 48–66

Hevner, A et al., (2004), "Design Science in Information Systems Research", *MIS Quarterly* (28:1), pp. 75-105.

Hevner, A.R., March, S. T., Park, J., and Ram, S.,(2004), "Design science in information systems research", *MIS Quarterly*. 28(1), pp. 75–105.

Jain, S.C. (1984), "Environmental scanning in US corporations", *Long Range Planning*, Vol. 17, pp. 117-28.

Jakobiak, F. (1998), *L'intelligence économique en pratique*, Éd. d'organisation, 1998

Knauf, A., (2005), "L'interaction acteur – système d'information au cœur de la dynamique d'un dispositif d'intelligence territoriale", *Revue ISDM* (*Journal of Information Science for Decision Making*), n°22.

Knauf, A, (2005), "L'interaction acteur – système d'information au cœur de la dynamique d'un dispositif
d'intelligence territoriale". *In Revue ISDM* (*Journal of Information Science for Decision Making*), n°22.

Levet, J.L. (2001), "L'intelligence économique : mode de pensée, mode d'action", Economica African small business owners", *European Journal of Work & Organizational Psychology*, Vol. 14 No. 3, pp. 315-44.

Lesca, H. (1997), *Veille stratégique : concepts et démarche de mise en place dans l'entreprise*, DISTNB, Paris.

Lockamy, A & McCormack, K (2004), "The development of a supply chain management process maturity model using the concepts of business process orientation", *Supply Chain Management: An International Journal*, Volume 9, Number 4, pp. 272-278.

Locke, E.A, Latham, G.P. (1990), *A Theory of goal setting and task performance*, Prentice-Hall, Englewood Cliffs, NJ.

Martinet B., Marti, Y.M.(2001), *L'intelligence économique, Comment donner de la valeur concurrentielle à l'information*, Paris, Editions d'Organisation, ISBN 978-2-708-12511-7

McClelland, D.C. (1987a), "Characteristics of successful entrepreneurs", *Journal of Creative Behavior*, Vol. 21 No. 3, pp. 219-33.

McClelland, D.C. (1987b), *Human Motivation*, Cambridge University Press, Cambridge.

McDonald, R.E, Madhavaram, S. (2007), "What firms learn depends on what firms know : the implications of prior knowledge for market orientation", *Marketing Management Journal*, Vol. 17 No. 1, pp. 171-83.

Mettler, T. and P. Rohner (2009), "Situational Maturity Models as Instrumental Artifacts for Organizational Design", *DESRIST'09*, May 7-8, Malvern, PA, USA. 24). Pittsburgh, PA: Software Engineering Institute.

Paulk, M.C., Curtis, B., Chrissis, M.B., & Weber, C.V. (1993), *The capability maturity model for software*, Version 1.1 (No. CMU/SEI-93-TR

Peffers, K., Tuunanen, T., Rothenberger, M., & Chatterjee, S. (2007), "A design science research methodology for information systems research". *Journal of Management Information Systems*, 24(3), 45–77.

Pellissier, R., Kruger, J.-P (2011), "A study of strategic intelligence as a strategic management tool in the long-term insurance industry in South Africa", *European Business Review*, Vol. 23 No. 6.

Raber, D., Winter, R., Wortmann, F., (2012), "Using Quantitative Analyses to Construct a Capability Maturity Model for Business Intelligence", *45th Hawaii International Conference on System Sciences*.

Rapaccini, M., Saccani, N., Pezzotta, G., Burger,T., and Ganz,W., (2013), "Service development in product-service systems: a maturity model", *The Service Industries Journal*, Vol. 33, Nos. 3–4, 300–319

Ro¨glinger, M., Po¨ppelbuß, J., and Becker , J., (2012), "Maturity models in business process management", *Business Process Management Journal*, Vol. 18 No. 2, pp. 328-346

Sagie, A, Elizur, D., (1999), "Achievement motive and entrepreneurial orientation : a structrual analysis", *Journal of Organizational Behavior*, Vol. 20 No. 3, pp. 375-87.

Salvetat, D., (2001), "Les pratiques d'intelligence économique et leurs déterminants : le cas des entreprises de hautes technologies en Europe", PhD dissertation, Université de Montpellier 1.

Salvetat D. (2008), "Pratiques d'intelligence économiques : entre structuration et dé-structuration. Le cas des entreprises européennes de hautes technologies", *Systèmes d'information et management*, 13, 3, p43.

Serna M, E., (2012), "Maturity model of Knowledge Management in the interpretativist perspective", *International Journal of Information Management*.

Swierczek, F.W, Thanh Ha, T. (2003), "Motivation, entrepreneurship and the performance of SMEs in Vietnam, *Journal of Enterprising Culture*", Vol. 11 No. 1, pp. 47-68.

Tej Adidam et al., (2009), "Cross-cultural competitive intelligence strategies", *Marketing Intelligence & Planning* 27(5):666-680

Tej Adidam, P, et al., (2012), "Competitive intelligence and firm's performance in emerging markets: An exploratory study in India", *Journal of Business & Industrial Marketing* 27(3):242-254 ·

Thomas, J.B., Clark, S.M. and Giola, D.A. (1993), "Strategic sensemaking and organizational performance: linkages among scanning, interpretation, action, and outcomes", *Academy of Management Journal*, Vol. 36 No. 2, pp. 239-70.

Wendler, R (2012), "The maturity of maturity model research: A systematic mapping study", *Information and Software Technology*, 54, 1317–1339

Wilensky, H., (1967), *Organizational Intelligence: Knowledge and Policy in Government and Industry*, New York: Basic Books.

Wright, S., Eid, E.R., & Fleisher, C.S. (2009). "Competitive Intelligence in Practice: Empirical Evidence From the UK Retail Banking Sector", *Journal of Marketing Management*, 25(9/10), 941-964

Wright, R. Eid, Fleisher (2009), "Competitive intelligence in practice: empirical evidence from the UK retail banking sector", *Journal of marketing management*, Vol. 25, No. 9-10, pp. 941-964.