10-2019

Design Thinking: The New Mindset for Competitive Intelligence? Impacts on the Competitive Intelligence Model

Luis Madureira

Mauro Castelli

Aleš Popovič

Design Thinking: The New Mindset for Competitive Intelligence? Impacts on the Competitive Intelligence Model

Luis Madureira, NOVA Information Management School (NOVA IMS), Universidade Nova de Lisboa, Campus de Campolide, 1070-312 Lisboa, Portugal, lmadureira@novaims.unl.pt

Mauro Castelli, NOVA Information Management School (NOVA IMS), Universidade Nova de Lisboa, Campus de Campolide, 1070-312 Lisboa, Portugal, mcastelli@novaims.unl.pt

Aleš Popovič, Faculty of Economics, University of Ljubljana, Kardeljeva ploščad 17, SI-1000 Ljubljana, Slovenia, ales.popovic@ef.uni-lj.si

Abstract

Competitive Intelligence (CI) is becoming of essence due to the need for improving firm performance in an increasingly volatile, uncertain, complex and ambiguous (V.U.C.A.) world. The CI model, however, has not evolved to address evolving intelligence needs, highlighting an opportunity for further research on how to fit for purpose the CI process itself. This study found that Design Thinking (DT) mindset and process has potential for the application to the CI model, improving efficiency both on the overall process, at each stage and in CI. This paper focus on researching the CI process and recognizing its main pitfalls, explaining how DT can help fix or improve on these, and propose a new process which incorporates the aforementioned results. The final part of the study analyses the implications for both CI practitioners and the CI discipline, while pointing to future research with the aim of validating this suggested framework.

Keywords: Design Thinking Application; Competitive Intelligence Process; Firm Performance

1. INTRODUCTION

In an increasingly VUCA world, CI is of vital importance to Business as it enables superior Firm Performance *(Yap, Cheng, Mohamad Hussain, & Ahmad, 2018)*. It does so by providing actionable insights on the competitive environment, allowing companies to make the best possible decisions and position themselves successfully *(Rothberg & Erickson, 2017)*. The process of developing such insights in use to this day is the Intelligence Cycle, imported from the Intelligence Services in the 1960's *(Zlotnick, 1964)*. The Intelligence Cycle is flawed mainly due to several factors such as the breadth and complexity of intelligence needs, their clear articulation by the decision-maker, the completion and sequential nature of the cycle, the reliance on CI practitioners to run it *(McGonagle, 2007; Tropotei, 2018)*, and the capability to deliver timely insights given the environment exponential speed of change *(Calof, Richards, & Santilli, 2017)*. In a nutshell, companies are struggling to orient themselves in search for sustained performance while CI practitioners still rely on an outdated and flawed CI process – the Intelligence Cycle – which is not fit for purpose anymore *(Wheaton, 2012; Tropotei, 2018)*. The generalized gap in qualified training *(Fleisher, 2004; Jin & Bouthillier, 2012; Sidak, Zakharov, & Zaplatynskyi, 2018)* in university programs, coupled with

ISSN 2183-489X

vague role requirements and job descriptions, results in further ambiguity on how CI should be performed, attributing the stature of Rock Stars to those who master it. Solving problems by using a designer's mindset, or DT, has become increasingly popular in many professions, most notably in Business *(R. L. Martin, 2009a)*. Roger Martin, one of the world's top management thinkers – Thinkers50 #1 in 2017 – and former Dean of Rotman School of Management, argues that to be successful in the future, business people need to become more like designers *(Brown, 2009, p. 37)* – more 'masters of heuristics' rather than 'managers of algorithms' *(R. L. Martin & Christensen, 2013)*. Thus, given the growing importance of the CI, the pivotal role of the Intelligence Cycle, and the need for CI practitioners and business people to think like designers, it is highly relevant to research how DT can improve the CI process fit for purpose, solving or mitigating existing pitfalls, benefiting CI practitioners and organizations in search for increase and sustained performance.

Prior research shows that CI has grown in importance over the last decades. Before the 1980's, CI was focused on competitive data gathering, changing to Industry and Competitor Analysis *(Porter, 1980)* during the 1980's, then on supporting Strategic Decision Making during the 1990's, then as a Core Capability with advances on both Business and Scientific Research *(J. E. Prescott, 1999; Marcial, 2018)*. Most recently, research is focused on the development of infrastructures for multinational organizations as well as on leveraging the use of digital, namely Social Media and its analysis for CI purposes *(Du Toit, 2015)*. While prior research has been focused in the Collection and Analysis phases of the Intelligence Cycle, in close parallel to the amount of time practitioners allocate in practice to these phases *(Dishman & Calof, 2008),* little or no attention has been paid to how efficiency can be improved in the remainder phases of the Intelligence Cycle, namely in Planning, Communication, and Usage phases, as well as in the overall cycle itself. Considering that the CI process works with relativistic, complex, dynamic social constructs and problems which impact its outcome *(Du Toit, 2015)*, and there seems to be no research on how DT as a human centred problem-solving approach could eventually help the CI process address these issues, it is paramount to do so.

This paper intends to study the potential for the application of DT mindset and guidelines *(Carlgren, Rauth, & Elmquist, 2016)* as a way to solve the identified shortcomings and pitfalls in the CI process *(Wheaton, 2012; Fleisher & Bensoussan, 2015; Calof et al., 2017; Tropotei, 2018)*, both on each individual stage and as a whole. The research question is thus how the DT mindset can be used to improve the CI model.

The main expected contribution of this exploratory study is the application of the DT mindset to the Intelligence Cycle as a means to improve CI's outcome, application, and impact on Firm Performance. The findings are expected to expand both CI and DT theories, while creating a new stream of research on the integration of both. Contribution to CI theory results from an improved Intelligence Cycle and CI model. Contribution to DT theory results from its application to a new

field, in this case CI. Contribution to science results from research in the intersection of both. As per the above, the findings are relevant to both CI practitioners, organizations and scholars.

The paper starts by explaining the methodology used, reviewing CI and DT mindset literature, deriving the potential impacts of the later on CI, and finished by pointing to further research opportunities.

2. MATERIAL & METHODS

This article studies the counterarguments for the current way the Intelligence Cycle is used in the development of CI, both in theory and practice, and how a DT mindset can address them in order to improve the overall CI Model.

In order to determine the main research concepts and methods, a constructivist approach is used. As such, it is assumed that the social realm can be understood and there is no single truth. Following this approach, the ontology of this study is subjective, highlighting the fact that understanding and perception are used to filter the actual reality. The epistemology of this research, which is interpretative, aims not only to explain the studied phenomenon, but also to frame it within an overarching comprehensive framework, integrating theories, paradigms, and the several researches from both fields of study. From this perspective, the methodology is qualitative.

Information for this study was collected through a thorough analysis and review of academic literature (to which it was given preference), industry research, and professional first-hand experience.

The methods used can be summarized as follow, with more detailed sources listed in the References section: 1) literature review of published scientific papers on the subjects of CI and DT using Google Scholar and search terms such as 'Competitive Intelligence Process', 'Competitive Intelligence Model', 'Competitive Intelligence Cycle', 'Competitive Intelligence Literature Review', 'Competitive Intelligence Challenges', 'Design Thinking', 'Design Thinking Mindset', 'Design Thinking Process', 'Design Thinking Applications', and 'Research Flaws', 'Intelligence Cycle pitfalls', supported by the usage of the Boolean operators such as " " and AND; 2) review of content published by subject matter experts at highly-regarded institutions such as Stanford D School, IDEO, and Rotman on Design; and 3) Review of concepts in renowned books on the topics including 'Change by Design' *(Brown, 2009)*, 'Thoughts on interaction design' *(Kolko, 2010)*, 'The Design of Business: Why Design Thinking is the Next Competitive Advantage' *(R. L. Martin, 2009a)*.

3. COMPETITIVE INTELLIGENCE MODEL

3.1. Competitive Intelligence

One cannot properly analyse the CI Model without first considering the definition of CI. Since there is a huge number, and debate on the definition of CI *(Marcial, 2018)*, after a thorough systematic literature review it is chosen to consider two definitions to contextualize CI for the purpose of this paper. The first is from *(Kahaner, 1996)* and is the most cited CI definition to date according to *(Marcial, 2018)*; the second, is the latest attempt to provide an universal definition of CI, accepted by both scholars and professionals developed by *(Pellissier & Nenzhelele, 2013b)*. These definitions assert that CI is a systematic program, practice or process. The process has several phases, with actionable intelligence being its final outcome, but cyclic in nature. The intelligence, not information, is what can be actioned in decision making and competitive advantage development which result in improve Firm Performance. In order to provide a working definition for this paper, it is opted to define CI as the development of actionable insights on the Competitive Environment for the improvement of Firm Performance.

3.2. Competitive Intelligence Projects

There are two different types of intelligence projects: 1) answering Key Intelligence Questions (KIQs); and 2) addressing Key Intelligence Topics (KITs) *(Herring, 1999; J. F. Prescott & Miller, 2001)*. The first is as a well-defined question, developed in tandem with the decision-maker, with the objective of reaching an answer quickly to inform a decision to solve a pressing issue. The latter has a broader scope, potentially with no definite answer (e.g. competitor strategy) as it may change over the period of time this CI project is being done to address a strategic decision. KITs are especially challenging to address due to the inherent ambiguity and change posed by the on-going nature of these projects. For a better understanding of these challenges and the common pitfalls related to the CI process phases, these are laid out in the following sections.

3.3. Competitive Intelligence Process Overview & Potential Pitfalls

According to the previous definitions of CI (Kahaner, 1996; Pellissier & Nenzhelele, 2013b), the intelligence development process phases can go from Planning, to Collection, to Processing, to Analysis, to Dissemination, to the Usage of Intelligence by the decision-makers. The number of phases of this process, also known as the Intelligence Cycle, has been evolving through time. (Kahaner, 1996) highlighted its efficiency through the simplicity of just four phases: Planning and direction, Collection, Analysis, and Dissemination. The *(CIA, 2007)* added Processing as an additional phase in between Collection and Analysis. The most recent models have nine (Pellissier & Nenzhelele, 2013a) and eleven phases *(Araujo, Costa, & Aparicio, 2017)*. This reflects the

different and evolving decision-maker and end-user needs, broader scope of KITs and KIQs, and factors impacting the development of CI.

Given this paper's aim of assessing the impact of DT in the CI model, it was decided to consider the eleven phases which are described next in more detail, highlighting its characteristics and potential pitfalls. The originating factors of these pitfalls were identified by *(McGonagle, 2007; Calof et al., 2017; Tropotei, 2018)* as being the breadth and complexity of intelligence needs, clear articulation by the decision-maker, completion and sequential nature of the cycle, reliance on CI practitioners to run it, capability to deliver timely insights given the environment exponential speed of change, as previously mentioned in the introduction section and referred here for convenience. The pitfalls themselves, as well their application to individual phase, have long been identified by *(Fleisher & Wright, 2010; Fleisher & Bensoussan, 2015)* as being problem definition, project planning, data-gathering error, tool- and -technique error, synthesis error, communication transmission or channel error, communication reception error, and unsystematic development. *(Fleisher & Bensoussan, 2015)* further highlight that the Intelligence Cycle also struggles with the fact of knowing when to stop one phase and start the next, or another within the cycle, increase the time to get to the insight and compromising the timely response to intelligence needs. It is though critical to study the overall process and its individual phases in detail to understand where it can be improved.

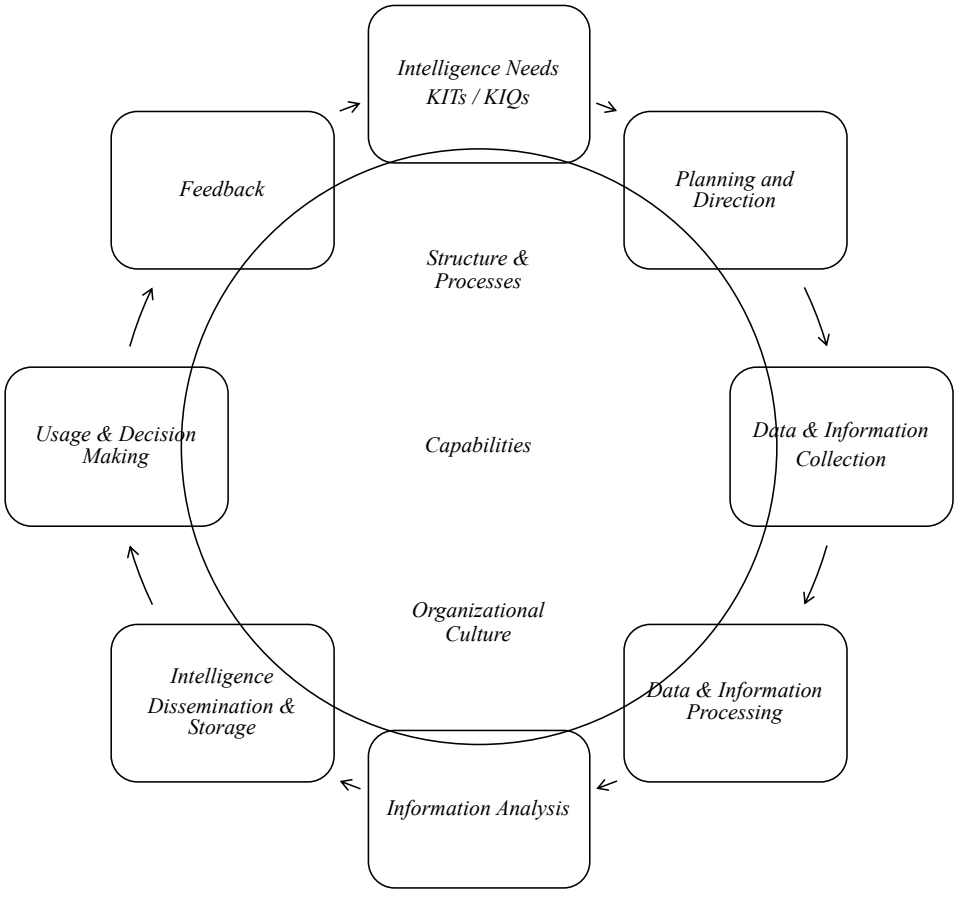

Figure 1 – CI Model adapted by the author from *(Araujo et al., 2017; Pellissier & Nenzhelele, 2013a)*

Determining Intelligence Needs and KITs/KIQs: The first phase is focused on ascertaining which key insights end-users must have in order to make informed decisions. Those needs, sometimes in the form of questions – KIQs, are then grouped into KITs. The outcome of this phase is critical for the CI process and inherently for Firm Performance *(Herring, 1999)*. In fact, if the produced intelligence does not match end-user needs, it loses its purpose and will not be acted upon. If it is not actionable, then it is not even considered as intelligence.

Surprisingly, most CI models and corresponding CI process do not even consider this stage *(Araujo et al., 2017 Table 1)*. CI needs are usually communicated by top management to CI practitioners, hence assumed as a given by the latter. This assumes top management know their true CI needs, what may not always be the case. Even if they do, they may start with the limitations of the data available in mind, not making the most of CI capabilities. If this phase is not considered in the process, the revision of KITs and KIQs according to the changing competitive environment – a constant in a VUCA world – has no place. Even considering CI needs are right from the beginning, it does not mean they do not need to be reviewed over time during the CI project execution. As such, it requires an on-going cooperative effort between producer and end-user to identify the relevant intelligence needs *(Herring, 1999)*. The same scholar even suggested protocols to facilitate this endeavour arguing for the need for rapport development between both parts, as well as a constant reviewing process of KITs.

Planning and Direction: Some scholars and authors defend this phase as being the most important *(Kahaner, 1997; Rouach & Santi, 2001)*, inclusive for CI practitioners. Once KITs and KIQs are clearly identified, the next step is to plan, allocate resources – people, budget and time – and direct further intelligence activities, while maintaining the end-user informed of progress and results. It should also be decided whom other potential users are, their need to be informed, and the best deliverable for the purpose of actioning the intelligence *(McGonagle & Vella, 1996)*. Planning for different, varied and complementary sources and recruiting a widespread network of informants throughout the organization can be a hugely successful strategy to achieve economies of scope – the lower cost and higher quality conclusions resulting from richer and higher volume of information converging to the CI process *(Gilad, 1989)*. It is of essence *not to collect all* available data and information, *but to focus only* on critical issues of highest importance to the senior management *(Daft, Sormunen, & Parks, 1988; Gilad, 1989; Herring, 1998; Viviers, Saayman, & Muller, 2005)*. A well-designed plan is a structured, logical, sequential, but adjustable process that clearly defines the relevant information to be collected.

Data & Information Collection: Included activities are identification of potential sources (primary and secondary), its research, and the ethical and legal gathering of relevant data and information using a considerable number of techniques *(Herring, 1998; Nasri, 2012)*. *(Kahaner, 1996, p. 54)* distinguishes different types of sources clearly and concisely: *"Primary sources are raw,*

unchanged, and usually in its entirety, while secondary sources have been selectively pared from other information sources or altered by opinion." Choosing a particular source is related to the type of information required and factors such as value, scope, relevance, ease of access, ease of processing, cost, availability, quantity and quality of data and information *(Wanderley, 1999)*. Potential sources of information in firms are limited only by the imagination. In fact, a considerable part of the information needed already exists within the organization. Employees are thus an important internal source *(Collins, 1997)*, and *(Herring, 1998)* argues that primary sources are more timely and unique. The great obstacles to accessing this information needed by CI practitioners are the geographic, organizational, and communication barriers within the organization itself.

Secondary sources are important namely for validating and identifying relevant primary sources. As such, the capability to gather information from these primary sources is pivotal, and most probably will make the difference on the final deliverable. Since the best intelligence mostly relies on nonpublished sources, human intelligence (HUMINT) demand for a more detailed analysis. Collection from human sources is highly specialized and certain basic issues need to be addressed for the purpose of this study. Although the inherent subjectivity, most of the times this is the only channel to reach information like a competitor's Management Assumptions *(Porter, 1980)*, or most importantly Consumer needs, expectations and behaviours *(Brummer, 2009)*. The entire organization including top and Middle Management, the Sales Force, Research & Development, Marketing, Corporate Relations, whoever has external contact points, should be capable of contributing to the intelligence collection. This requires a proper mindset and training so the critical role of human intelligence ethical and legal collection can be done properly.

Data and Information Processing: In this phase, data and information are organised, systematised, and a mechanism for storing information implemented and maintained. Cleaning and preparing the data and information is often overlooked in importance. Information stored in electronic format in a database is easier to analyse and to made available to other CI stakeholders *(Nikolaos & Evangelia, 2012)*. Some authors highlight that a CI system should adhere to certain key process, technology and design requirements *(Aaker, Kumar, & Day, 2004)*. It is worth to detail this later set of design requirements for the CI system: *simplicity* enabling an intuitive method to store, retrieve, navigate the information, and the intelligence development processes; *accessibility* from any location; *security* though protecting critical information and allow for different level of access; *capture internally produced information*; and *retrievability* of relevant and accurate information from both internal and external sources. On top of these, *(J. F. Prescott & Miller, 2001, p. 152)* argues that such system should be developed from the decision-maker's perspective which would significantly increase its adoption and usage in decision-making.

Information Analysis: Considered simultaneously the core and most challenging phase *(Kahaner, 1997; Rouach & Santi, 2001; Viviers et al., 2005)*. It relies on skills of the CI practitioner *(Nikolaos*

& Evangelia, 2012) and answers questions such as "So What?" on collected information on related KITs *(Fleisher & Bensoussan, 2015)*. Data and Information are analysed for patterns and interpreted for hypothesis on its meaning and potential impact on the organization. This is a collaborative process where CI analyst support their reasoning in colleague's expertise to derive meaning. It builds on top of other outputs such as Market and Consumer Research *(Rouach & Santi, 2001),* and most importantly, in tandem with decision makers to ensure that their intelligence requirements are met and acted upon. The validation of alternative competing hypothesis, as well as the development of high-quality insights depends on the tools, methodologies and frameworks chosen, as well as its savvy application. It is extremely important that analysts are self-aware of their reasoning process, and not just the conclusions they arrive to *(Heuer Jr, Heuer, & Pherson, 2010)*. It is tough a multifaceted, multidisciplinary combination of scientific and non-scientific processes whereby information is interpreted by analysts to provide finding, meaningful insights, and recommendations for action *(Fleisher & Bensoussan, 2015).* The most common pitfall happens when the CI analyst lose sight of the end goal, produce an outcome that is not immediately actionable, or allows his bias to influence analysis.

Dissemination & Storage: This phase is about communicating effectively the right actionable insights, at the right moment and in time, to the right decision-maker, in the right format that is easily understood, through a secure means of communication. These communications are in the form of a report, a dashboard, or a face-to-face meeting *(Bose, 2008)*. A vital consideration must be given to the format preferred by the CI end-user. Since 80% of communication is non-verbal, the CI practitioner shall also consider his posture and attitude on delivery. The CI practitioner should also guarantee the intelligence reaches all relevant stakeholders without compromising confidentiality and protection of sensitive information. First and foremost, transmission of intelligence should be done to those with responsibility and authority to act *(Viviers et al., 2005)*. In any case, actionable insights must be communicated in time, otherwise it may be no longer added-value intelligence, kept for future reference and for future insight development.

Usage and Decision Making: Acting upon insights is the overall purpose of the CI. Intelligence should either allow for an improved and deeper understanding of a KIT, making an operational decision, deploying a tactic, or developing a strategy, resulting in the development of Competitive Advantages that will foster Firm Performance. According to *(Eppler, 2003)*, the quality of the intelligence in this phase can be assessed through the following attributes: *applicability* – may be actioned and provides added-value; *currency* – fit for use and not obsolete; *interactivity* – adaptable to a changing environment; *speed* –the 'infostructure' is as fast as needed.

Feedback: An overlooked phase where quality of CI must be evaluated by the both the producer and end-user. The objective is to integrate this feedback into new CI projects to further increase efficiency. More than just a phase, feedback is a pre-requisite to be applied to all phases *(Rouach &*

Santi, 2001). An important note must be made on explicit and implicit feedback. CI practitioners need to be capable to collect both and integrate both current and future projects. In fact, feedback raises the need for new KITs and KIQs, either by identifying intelligence gaps or the need for entirely new CI projects. This gives continuance to the Intelligence Cycle, which is subsequently activated *(Botha & Boon, 2008)*. Under this perspective, CI is not an ad-hoc but a continuous, systematic and structured process *(Viviers et al., 2005)*.

Capabilities: The CI practitioner needs a considerable amount of different skills and expertise throughout the process. This highlights the need for a collaborative approach in CI projects *(Araujo et al., 2017)*. Most notably, rational and emotional skills are needed to be successful in developing relevant actionable insights. These include understanding needs and defining KITs, collection from open and human sources, reasoning for analysis, and communication skills to disseminate properly, together with a fair amount of leadership skills to successfully manage the full project. More a Critical Success Factor than a phase on its own, it is not sequential in relation to other phases, but a condition to guarantee overall CI efficacy.

Structure and Processes: Appropriate policies and procedures are vital for CI. A CI formal structure is equally important so that the overall organization can collaborate with, and contribute to, so further benefits can be withdrawn *(Kahaner, 1997)*. A pivotal example of such policies is the Code of Ethics, which allied to the applicable legal framework, must be part of CI operating policies *(Pellissier & Nenzhelele, 2013a)*. Structure and Processes are also a Critical Success Factor for good CI, thus, more than just a phase.

Organizational Culture: A *sine qua non* condition for CI to thrive is the appropriate organisational awareness and culture. Without an environment that fosters healthy market competitiveness and the sharing of both information and intelligence, CI efforts are expected to fail *(Viviers et al., 2005)*. Organizational Culture is a Key Success Factor and one of the hardest issues to affect CI *(Hedin, 2010)*.

In summary, the above explanation exposes the challenges throughout the CI process that must be addressed, namely identifying real CI needs, translating them into the right KITs, and producing accurate and timely actionable insights for the right stakeholders, as well as the creation of the environment to support it all.

4. DESIGN THINKING MINDSET & GUIDING PRINCIPLES

Five common themes and corresponding DT guiding principles used in practice were identified by *(Carlgren et al., 2016)* and are succinctly detailed below:

User Focus – Insight, Observation and Empathy: This is the starting point for any project: identifying stakeholder's needs *(Liedtka, 2015)* and keep updating them along the process by using

formal and informal feedback, in order to create an end-product tailored to address needs. Insight is the core of DT and the result of the observation of real problems faced by end-users. DT relies on observation to identify problems but also to problem-solving ideas. In the observation is included what is not done and what is not said by the process stakeholders. User focus is of evidence in empathy *(Micheli, Wilner, Bhatti, Mura, & Beverland, 2019)*, thorough end-user understanding and engagement. Empathy is the core value of human-centeredness *(Liedtka, 2015)*, allowing to understand what is meaningful to end users *(Connell & Tenkasi, 2015)* and develop better solutions for end users articulated and non-articulated needs *(Glen, Suciu, & Baughn, 2014)*.

Problem Framing – Non-linear Thinking, Openness, Comfortable with Ambiguity and Complexity: Instead of jumping to the solution, using analysis to deconstruct the problem, widening the challenge so it is possible to understand complex problems and enlarge the solutions areas. It then reframes the problem using synthesis to define the real problem. DT as the enabler of advancement through "The Knowledge Funnel" *(R. Martin, 2010)*: starting by exploration of a *mystery* – a relevant question, followed by development of a *heuristic* – a rule of thumb that helps focus the research efforts, to arrive to an *algorithm* – a fixed formula deriving from a general applicable rule of thumb. In this context, a Heuristic is *"an incomplete yet advanced understanding of what was previously a mystery",* while an Algorithm is an *"explicit step-by step procedure to solve a problem" (R. L. Martin, 2009b).* Design thinking is thus proposed as an alternative approach to typical linear problem solving *(Luchs, Swan, & Griffin, 2016; R. Martin, 2010)*, namely 'wicked' ones *(Buchanan, 1992)*. Since ambiguity is an underlying concept in defining and approaching wicked problems, the design thinking's embracing of ambiguity and complexity through non-linear thinking can help frame and solve this type of problems *(Micheli et al., 2019)*.

Visualisation - Making the Complex Simple: Uses drawings and visual adds to understand a process or problem, as well as to communicate analysis, models, and complex findings. Improve communication efficiency by reaching wider and non-expert audiences. Storytelling – a means of visualization – is used to put ideas in context and derive meaning from them *(Micheli et al., 2019)*. The point of the story is understanding the story itself, in other words, getting to the insight. Shibumi is one of the Zen principles of Design, an overarching concept, an ideal. The meaning is reserved for objects and experiences that exhibit in paradox, and all at once, the very best of everything and nothing. In summary, making the complex look simple: elegant simplicity, effortless effectiveness, understated excellence, beautiful imperfection *(Susanka & Obolensky, 2001).*

Experimentation – Iteration, Prototyping, and Creativity: This relates to the concept of the unfinished. Identifying the heuristics that are good enough to findings to proceed saving immensely valuable time, allowing more time to devise the best plan forward. It uses divergent and convergent thinking to explore possibilities and hypothesis to be able to identify the best insights and solutions,

even if not deemed plausible at the beginning. The nature of the design process is to be an on-going iteration to achieve superior results through insight *(Liedtka, 2015; Luchs et al., 2016, p. 324)*

Diversity – Integrative thinking: Collectively build new creative alternatives to address identified problems in a continuous balanced act which results is abductive thinking. This mode of thinking integrates seemingly disparate and unconnected data points and pieces of information into new thinking, promoting an approach towards workable solutions which is 'assertion-based' rather than 'evidence-based' and especially useful to derive new insights *(Michlewski, 2008)*. This sits squarely between the analytical mastery and intuitive originality, a constant trade-off between exploration and exploitation, integrating different perspectives and backgrounds in the project *(R. L. Martin, 2009a)*. Cross-functional, heterogenous teams are better suited to deal with complex problems *(Glen et al., 2014; Luchs et al., 2016; Micheli et al., 2019)*.

5. DESIGN THINKING IMPACT ON THE CI MODEL

Previous attempts to improve the Intelligence Cycle have focused in the identification of its flaws and their originating factors (Wheaton, 2012; Tropotei, 2018). According to the later, the technical models have shown their limitations in practice, and the human factor is still the critical success factor. It is thus the first time, to the best of the author's knowledge, that a solution is proposed in the form of a mindset to address the manager of the CI process, rather than just the CI process itself. This potentially significant contribution to the advancement of the current state of the art is detailed next. Although DT is largely associated with a process, it is in fact, a human-centred approach to problem solving with a *"set of principles that can be applied to a wide set of problems"*. The type of problems DT addresses, such as development of new processes, services, interactions and ways of communicating and collaborating *(Brown, 2009)*, are very similar to the CI model pitfalls *(Fleisher & Bensoussan, 2015)* identified in section 3. These pitfalls such as problem definition, project planning, data-gathering error, tool- and -technique error, synthesis error, communication transmission or channel error, communication reception error, and unsystematic development can thus be potentially solved through the application of the DT mindset to the CI model.

DT focuses is on the intersection between 1) Consumer & Customer needs – *desirability*; 2) the Technology that enables addressing those needs – *feasibility*; and 3) the creation of real Business value – *viability (Brown, 2009)*. This intersection is critical to guarantee CI project's success right from the start, as it helps selecting the most relevant, feasible and viable projects, while allowing for the priority management of the business's portfolio of Intelligence needs. Increased focus and relevancy are thus evident contributions of DT to CI. Using this intersection to filter which CI

projects to invest in can save considerable time, effort, and money, while improving the response times to firm intelligence needs, hence Firm Performance.

Three important considerations can be drawn from the DT literature and guidelines presented in the previous section: 1) a *mindset* can guide the cultural change needed for embedding it in the organization; 2) an *integrative thinking* approach allow for a holistic view of any challenge faced by the CI practitioner; 3) shift from problem to *project thinking* – helps navigate and balance the constraints - needs, technology and viability - and carries the CI from concept to reality.

Overall, due to the experimentation orientation, DT can bring the CI deliverable closer to the concept of Strategic Flux introduced within the larger concept of CI in real-time by *(Madureira, 2013, 2017; Gonçalves & Madureira, 2017; Gundersen, 2018).*

Intelligence Needs and Determining KITs/KIQs: DT principles of user focus and framing the problem may help guarantee the correct KITs and KIQs are identified, delimiting the scope of the project. Better questions will undoubtedly lead to at least easier answers, if not better. The dynamic and constant iteration along the CI project can maintain their relevancy and business currency. Creating empathy with end-user problems to uncover latent needs and help to articulate the full set of the real needs can be the difference between full success, or the need to start all over again. Visualization can furthermore facilitate the interaction between stakeholders, namely between CI producers and users to effectively pinpoint and articulate CI needs. Understanding of a problem through designing, modelling or mind mapping a complex analysis – prototyping – can help identify potential intelligence needs. Finally, the integration of different perspectives and backgrounds can be useful to further identify needs that the end-user is not considering simply by not being aware of those perspectives, as well as the cross-impact effects on other functions and business areas. In summary, develop a holistic approach to intelligence needs analysis and its proper articulation.

Planning and Direction: DT sweet spot of desirability, feasibility and viability is pivotal in planning, steering and delivering a CI project. The definition of what is possible from the outset, but even more, to keep it flexible through iteration, can greatly improve the management of the CI project. Improved communication, resulting from empathy between CI producer and end-user may also help to align the CI function with the organization at large. This may help eliminate the well-known problem of the "by-pass" of central functions by end-users who serve themselves, ending one-sided completely wrong or half-correct perspectives. On the flip coin, it ends the insulation of the CI practitioner, avoiding the frequent situation of delivering thoughtful intelligence when the decision is already made, or towards a brief that is outdated. The mandatory inclusion of different perspectives helps aligning towards a better solution, namely integrating the consumer and customer perspectives that were not so long ago the scope of Consumer Research, Marketing and Sales

functions. DT user focus may help to overcome the current limitation of CI, both internally and externally. All the above add to the increased overall relevancy and efficiency of the CI project.

Data & Information Collection: DT can impact this phase mainly on three levels. The first is through integration of new sources due to diversity of perspectives. The second is through the usage of empathy in HUMINT, namely by establishing a better rapport with the owner of the data or information to be elicited, understanding the underlying reasons for a specific target to liberate non-sensitive information that can finally unlock the needed insight. The third is on using iteration and heuristics to identify the point where to stop collection, allowing for a faster response time without losing explanatory power of data collected. Most of the time, due to time, budget concerns, or even the missing data points or information, the optimal solution is impossible or impractical. And this is where the use of heuristic methods can speed up the process of finding a satisfactory solution for CI purposes. Iteration would guarantee that more detail with less explanatory power would only be considered if needed so. Reduction in complexity and faster response time would be the major benefits.

Data and Information Processing (Structure, Elimination & Storing): This phase could benefit largely from the visualisation techniques DT bring into the equation, making the seemingly complex disparate data points into a set or organized information. User focus could also be applied to the information system which store data and information making the CI analyst job easier and more efficient, as well as the access to intelligence store in the system by the end-user. DT applied to this stage would mainly improve the overall usage of CI.

Information Analysis: DT can support the CI practitioner in understanding the depth of insight needed for the decision-maker to make a given decision. Empathy could be used to run the CI operation more efficiently and produce the appropriate intelligence, and namely the foresight that causes management to act. Together with heuristics which can be used to develop rules of thumb, educated guesses, intuitive judgments, stereotyping, profiling, or plain common sense can improve analysis in speed and simplicity. Abductive thinking is a logical way of considering such inference or "best guess" leaps. And unlike deduction or induction, abductive logic would allow for the creation of new knowledge and insight, so adding value. Simultaneously, visual thinking can be used to get to insight quicker, improving speed and depth. Similarly experimentation as *(Brown, 2009)* masterly explains would allow for *"…understanding do not entail progress toward an absolute truth, but rather an evolving interaction with the context or environment…".* As an iterative and abductive reasoning approach, DT can be the enabler for move from a finished style of deliverable to a more flux delivery. The delivery of layered intelligence can improve both the understanding and lead to a quicker decision-making. This result in more value realized earlier, with incremental value derived from deeper understanding of the topic over time. Diversity could support the integration of different information sources and topics leading to more solid insights and less blind spots.

Dissemination: CI end-users need to understand what happened, what is happening, and what may happen, thoroughly. DT can help explain the insights in a simpler, although not simplistic way. This would avoid excess of detail and increase the probability of more effective communication using the Shibumi and visualisation principles. An important contribution would be matching the CI deliverable to user needs and preferences, which is not always the case, through increased user focus.

Usage and Decision Making: The improvement in communication due to iteration and integration of perspectives along the CI process would allow for a decrease in the inherent anxiety of the decision-maker and in the decision-making process, thus fostering usage of the intelligence produced. That is what good intelligence should be: making the complex simple for the decision-maker. The concept of unfinished could also help decision-makers act on heuristics, rather than wait for 100% correct insights that will be outdated when ready. DT can though help CI practitioners and end-users to act faster.

Feedback: User focus and experimentation can play a pivotal part in obtaining feedback while integrative thinking can support the embedding of this feedback on the CI model. Both contribute to increased efficiency in all phases.

Capabilities: DT brings a considerable toolbox for the CI professional, most importantly, it can build a common mindset that builds on these tools to develop a unified culture that allows for the CI capability to flourish in an organization.

Structure and Processes: DT diversity impacts organizational structure on the modus operandi more than on the structure itself. Integrating diverse perspectives demands from a matrix approach rather than a hierarchical one. DT can provide the facilitating factor to improve the efficiency of this matrix to approach. Processes wise, DT own process of Empathy, Define, Ideate, Prototype, is a great addiction to the CI toolbox and can materialise the DT mindset across the organisation, in the CI process and in each phase. The potential impacts have been described above in this section.

Organizational Culture: DT can play a critical role in embedding the CI culture within the organization by promoting team effort, knowledge sharing, curiosity, and strategic flexibility, and mastering intelligence co-creation. DT as a human centred problem-solving approach is a logical enabler for Customer Centricity, namely through the User Focus mindset.

The following table summarizes the last sections by juxtaposition the Intelligence Cycle phases description and related pitfalls, the applicable DT mindset and guiding principles, the potential contributions and two illustrative practical examples.

INTELLIGENCE CYCLE	PHASE DESCRIPTION / PITFALLS	APPLICABLE DT MINDSET & GUIDING PRINCIPLES *(Carlgren,et al, 2016)*	POTENTIAL CONTRIBUTIONS	2 ILLUSTRATIVE PRACTICAL EXAMPLES
NEEDS	• Determine must-have actionable insights for decision-making • Poor problem definition | Correct identification of Intelligence Needs | Biased evaluation of CI capabilities | Needs are static over time | Bad communication between end-user and Intelligence producer	• User Focus – Insight, Observation & Empathy • Problem Framing – Non-linear Thinking, Openness, Comfortable with Ambiguity and Complexity • Visualisation - Making the Complex Simple • Diversity – Integrative thinking	• Identify real end-user needs • Better problem framing and CI Project scope definition • Iterative feedback / communication • Holistic approach to intelligence needs analysis and its proper articulation • Empathy to help remove bias in CI capabilities assessment	• Use empathy to better understand needs leading to better KIQs and more relevant insights • Use a cross functional approach and team in defining KITs and KIQs
PLANNING & DIRECTION	• Resource allocation and CI project direction • Unfocused, unstructured, illogical, ad-hoc, rigid project planning	• User Focus – insight, Observation & Empathy • Visualisation - Making the Complex Simple • Experimentation – Iteration, Prototyping, and Creativity • Diversity – Integrative thinking	• User focused planning • Integrate logic and emotion • Flexibility and Agility in Project management through iteration • Integrate different perspectives to improve CI efficacy and efficiency	• Plan the CI project with the end-user needs in mind rather than the completion of the Project itself or the technical constraints
COLLECTION	• Identification of sources, its research, and the ethical and legal gathering of relevant data and information using a considerable number of techniques • Internal information silos | Source-, Tool-, and Technique-error | Data-gathering error | Pervasiveness of collection capabilities, mindset, legal and ethical standards compliance	• User Focus – Insight, Observation and Empathy • Experimentation – Iteration, Prototyping, and Creativity • Diversity – Integrative thinking	• Diversity foster the consideration and integration of new sources • Empathy to facilitate HUMINT • Creativity in the identification of sources from difficult to obtain data	• Use empathy to obtain rapport with Human Sources • Explore new sources such as Social Web Listening for Consumer Needs identification
PROCESSING	• Organise, systematise, store and maintain database • CI System design: Simplicity, accessibility, security, capture internal information production, retrievability, account for end-user perspective	• User Focus – Insight, Observation & Empathy • Visualisation - Making the Complex Simple	• User-centred Information System development facilitating adoption • Visualization as a tool identify relevant data and filter noise	• User friendly Information System's interface development for both CI practitioners and decision-makers • Use Mind Mapping techniques and tools to structure collected data
ANALYSIS	• Collaborative analysis and interpretation of data and information for patterns, meaning and potential impact on the organization • Analyst single perspective | Synthesis error | Analysis bias | Tool-, Technique, and Application-error | Loose sight of end-goal | Production of non-actionable outcome	• User Focus – Insight, Observation and Empathy • Problem Framing – Non-linear Thinking, Openness, Comfortable with Ambiguity and Complexity • Visualisation - Making the Complex Simple • Experimentation – Iteration, Prototyping, and Creativity • Diversity – Integrative thinking	• Better understanding of end-user needs support choice of best analysis tool improving outcome's timeliness and simplicity • New insights by making sense of seemingly disparate data points either using Integrative Thinking approach and Visualization techniques • Visual Thinking impact on speed to insight and new insights • Heuristic approach enables insights Flux, and potentially quicker and higher added value decision-making • Integrative Thinking potential dismisses more blind spots	• Visualisation through Social Graphs to identify understand communication audiences • Intermediate cross check with internal experts on the development of the CI deliverable to account to avoid blind spots only identifiable by subject matter experts
DISSEMINATION & STORAGE	• Guarantee effective communication of the right actionable insights, at the right time, to the right decision-maker, in the right format, through a secure means. Storage for future use in CI development.. • Communication transmission-, channel- or means-error | Communication reception error | Outdated | Wrong time | Confidentiality | Noise	• User Focus – Insight, Observation and Empathy • Visualisation - Making the Complex Simple	• Understanding end-user needs and simpler ways of presenting insights, in the best format from the user's perspective can improve communication significantly. • Reduce anxiety through better communication	• Read end-users body language in reaction to CI deliverables to improve the later • Focus on user decision timings rather than when CI deliverable is ready for dissemination
USAGE & DECISION-MAKING	• Acting upon insights • Lack of applicability, currency, interactivity, timeliness	• User Focus – Insight, Observation and Empathy • Experimentation – Iteration, Prototyping, and Creativity	• Simplify the decision through better and tailored intelligence • Faster decision making allowing for timely opportunity exploitation	• Identify end-user usage of intelligence to decide on the best format for the CI deliverable • Provision flux of insights to support decision-making instead of a full extensive report hard to assimilate
FEEDBACK	• Obtain and integrate feedback to increase efficiency • Miscommunication | Lack of feedback | Break the Cycle	• User Focus – Insight, Observation & Empathy • Experimentation – Iteration, Prototyping, and Creativity • Diversity – Integrative thinking	• Integrate and embed feedback from the continuous iterations with the multitude of stakeholders improving efficiency throughout the CI process	• Implement evaluation system for CI deliverables • Integrate feedback as available in the CI project charter
CAPABILITIES	• Range of skills and expertise needed by the CI practitioner • Needs misidentification | No agency | Wrong or partial insights	• User Focus – Insight, Observation and Empathy • Problem Framing – Non-linear Thinking, Openness, Comfortable with Ambiguity and Complexity • Visualisation - Making the Complex Simple • Experimentation – Iteration, Prototyping, and Creativity • Diversity – Integrative thinking	• Enable Consumer and User Centricity, namely in identifying and respond to end-user needs • Enable Change Management, namely in Intelligence Culture development • Enable collaborative decision-making • A considerable new toolset that is applicable to every phase (e.g. Problem Framing, Visualisation, etc) enabling development of new capabilities in CI and across the organization	• Use DT Mindset and Guiding Principles in Consumer Intelligence Projects • Implement User Focus as a must have consideration as the starting point for every CI project
STRUCTURE & PROCESS	• Functional formal structure, policies and procedures • Potential illegal or unethical conduct	• Experimentation – Iteration, Prototyping, and Creativity • Diversity – Integrative thinking	• Experimentation as an enabler for increase process efficiency • Diversity as an enabler for Matrix structures	• Experiment with existing processes for efficiency improvement • Flexible CI team structure by CI project
ORGANIZATIONAL CULTURE	• Functional awareness and supporting culture • Functional unsuccess	• User Focus – Insight, Observation and Empathy • Problem Framing – Non-linear Thinking, Openness, Comfortable with Ambiguity and Complexity • Visualisation - Making the Complex Simple • Experimentation – Iteration, Prototyping, and Creativity • Diversity – Integrative thinking	• Enable the embedment of a CI culture • Enable collaborative CI production	• Use Empathy to guarantee any decision start with consumer enabling Customer Centricity culture development • Use cross-functional projects teams for CI co-creation
COMMON TO ALL PHASES	• Process Management • Unsystematic development | When to change phase | Thoroughness/Timeliness trade-off	• Problem Framing – Non-linear Thinking, Openness, Comfortable with Ambiguity and Complexity • Experimentation – Iteration, Prototyping, and Creativity	• Increased focus and relevancy • Increase Timeliness and enables the Strategic Flux • Improves Firm Performance • A Cultural transformation enabler that can support the CI culture development, hence overall efficiency and adoption • Holistic view of any CI Project • Project Thinking • Iteration and Heuristics to improve changing phase decision	• Efficient selection of CI projects • Priority management of CI needs • Development of new CI processes, services, interactions and ways of communicating and collaborating

Table 1 – Intelligence Cycle phases description and respective pitfalls, Carlgren's DT mindset and guiding principles, potential contribution to solve identified pitfalls, and two illustrative practical examples

6. CONCLUSION

The development of a DT mindset by CI practitioners would support the advancement of the function to cope with the current and the competitive environment of the future. Most importantly, it can

address current CI issues such as the breadth and articulation of end-user needs, the sequential cycle nature of the process which slows down response time, coping with an exponential speed of change of the competitive environment, and embedding CI, and its culture of informed decision-making, within the organization at large.

Empathy supports the superior alignment with the internal client, while at the same time can improve both Primary and Secondary information collection, balancing the most rational and highly logical approach CI practitioners tend to apply today. Very importantly, it forces CI to focus on the customer, as well as the organization which uses the insights derived with such a mindset. It thus promotes the change from internal to external focus, leading to the customer-centric organization, a prerequisite for success as 'quality,' price, and operational efficiency are less and less factors of differentiation.

The Design Thinker CI practitioner, one who masters heuristic development, can deliver rules of thumb for much faster decision making much than the current model focused in providing a 100% right actionable insights. If we consider that societal and technological changes occur at a blindingly faster pace, DT may be a valid way to help CI practitioners and organizations to keep up. Use of iteration and heuristics can shorten response time while increasing efficiency of the overall process and accuracy of deliverables. This results from an increased capacity to deal with complexity via improved sense-making and non-linear thinking by the usage of abductive reasoning.

Visualization and design principles like Shibumi would also upgrade the CI practitioner's capability to communicate findings more effectively without falling for simplistic approaches to complex problems. This can support CI superior usage and inherently superior Firm Performance.

From the above DT seems to be able to support the reduction of the response time to the intelligence challenges of today, and most notable from tomorrow.

7. LIMITATIONS AND RECOMMENDATION

This paper is a starting point for the improvement of the CI model effectiveness and subsequently Firm Performance. To keep this research within scope, the analysis was constrained to the improvement of the CI model, hence potential drawbacks resulting from the application of the DT mindset is a clear limitation. This should be considered in future research, as well as the validity of the application of DT principles to CI, building upon the application ideas with more consubstantiated recommendations. Additional focus can be given to measure the impact of the proposed CI model on Firm Performance, and comparison with alternative proposed CI model improvements.

REFERENCES

Aaker, D. A., Kumar, V., & Day, G. S. (2004). *Marketing research*. Retrieved from https://books.google.pt/books?id=BllaAAAAYAAJ&dq=Marketing+research+Aaker

Araujo, H., Costa, C. J., & Aparicio, M. (2017). Modelo de competitive intelligence (CI) competitive intelligence (CI) model. *2017 12th Iberian Conference on Information Systems and Technologies (CISTI)*, 1–6. https://doi.org/10.23919/CISTI.2017.7975787

Bose, R. (2008). Competitive intelligence process and tools for intelligence analysis. *Industrial Management & Data Systems*, *108*(4), 510–528.

Botha, D. F., & Boon, J. A. (2008). Competitive intelligence in support of strategic training and learning. *SA Journal of Information Management*, *10*(3).

Brown, T. (2009). *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*. Harper Collins.

Brummer, H. L. (2009). *A dynamic competitive analysis model for global mining firms*.

Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, *8*(2), 5–21.

Calof, J., Richards, G., & Santilli, P. (2017). Insight Through Open Intelligence. *Journal of Intelligence Studies in Business*, *7*(3).

Carlgren, L., Rauth, I., & Elmquist, M. (2016). Framing Design Thinking: The Concept in Idea and Enactment. *Creativity and Innovation Management*, *25*(1), 38–57. https://doi.org/10.1111/caim.12153

CIA. (2007, April 15). Central Intelligence Agency. Retrieved 16 May 2019, from The Intelligence Cycle website: https://www.cia.gov/kids-page/6-12th-grade/who-we-are-what-we-do/the-intelligence-cycle.html

Connell, S. E. F., & Tenkasi, R. V. (2015). Operational practices and archetypes of design thinking. In *Research in Organizational Change and Development* (pp. 195–252). Emerald Group Publishing Limited.

Daft, R. L., Sormunen, J., & Parks, D. (1988). Chief executive scanning, environmental characteristics, and company performance: An empirical study. *Strategic Management Journal*, *9*(2), 123–139.

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

Du Toit, A. S. (2015). Competitive intelligence research: An investigation of trends in the literature. *Journal of Intelligence Studies in Business*, *5*(2).

Eppler, M. J. (2003). *Managing Information Quality*. https://doi.org/10.1007/978-3-540-24782-1_1

Fleisher, C. (2004). Competitive intelligence education: competencies, sources, and trends: nearly all organizations are increasingly using competitive intelligence (CI) in their business marketing, planning, and strategizing; however, formal educational offerings in CI are seriously lacking. *Information Management Journal*, *38*(2), 56–62.

Fleisher, C., & Bensoussan, B. (2015). *Business and Competitive Analysis: Effective Application of New and Classic Methods, 2nd Edition*. Retrieved from https://www.pearson.com/us/higher-education/program/Fleisher-Business-and-Competitive-Analysis-Effective-Application-of-New-and-Classic-Methods-2nd-Edition/PGM275782.html

Fleisher, C., & Wright, S. (2010). Competitive Intelligence analysis failure: diagnosing individual level causes and implementing organisational level remedies. *Journal of Strategic Marketing*, *18*(7), 553–572. Retrieved from bth.

Gilad, B. (1989). The Role of Organized Competitive Intelligence in Corporate Strategy. *Columbia Journal of World Business*, *24*(4), 29–35.

Glen, R., Suciu, C., & Baughn, C. (2014). The need for design thinking in business schools. *Academy of Management Learning & Education*, *13*(4), 653–667.

Gonçalves, A., & Madureira, L. (2017). Luis Madureira SMINT. In *Social Media Analytics Strategy - Using Data to Optimize* (1st ed., pp. 47–52). Retrieved from //www.springer.com/br/book/9781484231012

Gundersen, S. (2018). *The rise of a new competitive intelligence Need of real-time competitive intelligence and the impact on decision-making* (Master). NOVA IMS, Portugal.

Hedin, H. (2010). *From Firefighters to Futurists*.

Herring, J. P. (1998). What is intelligence analysis. *Competitive Intelligence Magazine*, *1*(2), 13–16.

Herring, J. P. (1999). Key intelligence topics: a process to identify and define intelligence needs. *Competitive Intelligence Review: Published in Cooperation with the Society of Competitive Intelligence Professionals*, *10*(2), 4–14.

Heuer Jr, R. J., Heuer, R. J., & Pherson, R. H. (2010). *Structured analytic techniques for intelligence analysis*. Cq Press.

Jin, T., & Bouthillier, F. (2012). The integration of intelligence analysis into LIS education. *Journal of Education for Library and Information Science*, 130–148.

Kahaner, L. (1996). *Competitive Intelligence - From Black Ops to Boardrooms_how Business Gather, Analyze, and Use Information to Succeed in the Global Markeplace*. Simon & Schuster.

Kahaner, L. (1997). *Competitive Intelligence - How to Gather, Analyze, and Use Information to Move Your Business to the Top* (Edition Unstated edition). New York, NY: Simon and Schuster.

Kolko, J. (2010). *Thoughts on interaction design*. Morgan Kaufmann.

Liedtka, J. (2015). Perspective: Linking Design Thinking with Innovation Outcomes through Cognitive Bias Reduction. *Journal of Product Innovation Management*, *32*(6), 925–938. https://doi.org/10.1111/jpim.12163

Luchs, M. G., Swan, S., & Griffin, A. (2016). *Design Thinking: New Product Development Essentials from the PDMA*. Retrieved from https://www.wiley.com/en-pt/Design+Thinking%3A+New+Product+Development+Essentials+from+the+PDMA-p-9781118971819

Madureira, L. (2013, January). Social Market Intelligence An Introduction to "Future Ready CI". *Scip.Insight*, *5*(1). Retrieved from http://www.growthconsulting.frost.com/web/images.nsf/0/ab555e2f29b70ef186257af4004a60a7/$FILE/SCIP13V5Q1_SMI.htm

Madureira, L. (2017, Spring). SMINT - Why CI needs a new Approach. *Competitive Intelligence Magazine*, *20*(1), 12–16.

Marcial, E. C. (2018). Proposta inicial de uma teoria geral da inteligência competitiva. *Ciência da Informação*, *45*(3), 59–75. https://doi.org/10.18225/ci.inf..v45i3.4048

Martin, R. (2010). Design thinking: achieving insights via the "knowledge funnel". *Strategy & Leadership*, *38*(2), 37–41.

Martin, R. L. (2009a). *The Design of Business: Why Design Thinking is the Next Competitive Advantage*. Harvard Business Press.

Martin, R. L. (2009b). *The Opposable Mind: Winning Through Integrative Thinking*. Harvard Business Press.

Martin, R. L., & Christensen, K. (2013). *Rotman on design: The best on design thinking from Rotman magazine*. University of Toronto Press.

McGonagle, J. J. (2007). An examination of the classic CI model. *Journal of Competitive Intelligence and Management*, *4*(2), 71–86.

McGonagle, J. J., & Vella, C. M. (1996). *A New Archetype for Competitive Intelligence* (First Edition edition). Westport, Conn: Praeger.

Micheli, P., Wilner, S. J. S., Bhatti, S. H., Mura, M., & Beverland, M. B. (2019). Doing Design Thinking: Conceptual Review, Synthesis, and Research Agenda. *Journal of Product Innovation Management*, *36*(2), 124–148. https://doi.org/10.1111/jpim.12466

Michlewski, K. (2008). Uncovering design attitude: Inside the culture of designers. *Organization Studies*, *29*(3), 373–392.

Nasri, W. (2012). Conceptual model of strategic benefits of competitive intelligence process. *International Journal of Business and Commerce*, *1*(6), 25–35.

Nikolaos, T., & Evangelia, F. (2012). Competitive intelligence: concept, context and a case of its application. *Science Journal of Business Management*, *2012*.

Pellissier, R., & Nenzhelele, T. E. (2013a). Towards a universal competitive intelligence process model. *South African Journal of Information Management*, *15*(2), 1–7.

Pellissier, R., & Nenzhelele, T. E. (2013b). Towards a universal definition of competitive intelligence. *SA Journal of Information Management*, *15*(2), 7. https://doi.org/10.4102/sajim.v15i2.559

Porter, M. E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Simon and Schuster.

Prescott, J. E. (1999). The evolution of competitive intelligence: designing a process for action. *Proposal Management*, (Spring), 37–52.

Prescott, J. F., & Miller, S. H. (2001). *Proven strategies in competitive intelligence: lessons from the trenches*. John Wiley & Sons.

Rothberg, H. N., & Erickson, G. S. (2017). Big data systems: Knowledge transfer or intelligence insights? *Journal of Knowledge Management*, *21*(1), 92–112. https://doi.org/10.1108/JKM-07-2015-0300

Rouach, D., & Santi, P. (2001). Competitive Intelligence Adds Value: Five Intelligence Attitudes. *European Management Journal*, *19*(5), 552–559. https://doi.org/10.1016/S0263-2373(01)00069-X

Sidak, V., Zakharov, A., & Zaplatynskyi, V. (2018). *The role of competitive intelligence in ensuring the economic security of enterprises*. 13.

Susanka, S., & Obolensky, K. (2001). *The not so big house: A blueprint for the way we really live*. Taunton Press.

Tropotei, T. O. (2018). CRITICISM AGAINST THE INTELLIGENCE CYCLE. *SCIENTIFIC RESEARCH AND EDUCATION IN THE AIR FORCE - AFASES*, *20*, 77–88. https://doi.org/10.19062/2247-3173.2018.20.9

Viviers, W., Saayman, A., & Muller, M.-L. (2005). Enhancing a competitive intelligence culture in South Africa. *International Journal of Social Economics*, *32*(7), 576–589.

Wanderley, A. V. M. (1999). Um instrumento de macropolítica de informação. Concepção de um sistema de inteligência de negócios para gestão de investimentos de engenharia. *Ciência Da Informação*, *28*(2).

Wheaton, K. (2012). Let's Kill the Intelligence Cycle. *Competitive Intelligence*, *15*(2), 9–24.

Yap, C. S., Cheng, B. L., Mohamad Hussain, N., & Ahmad, R. (2018). Innovativeness, market intelligence practices, and firm performance of small- and medium-sized tour operators. *Tourism & Hospitality Research*, *18*(2), 143–151. Retrieved from bth.

Zlotnick, J. (1964). *National intelligence*. Industrial College of the Armed Forces.