



## Trends in digitization and digitalization of strategic intelligence implementation in businesses- A perspective from Ghana

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### Abstract

Strategic intelligence has a critical impact on business growth and how it gains competitive advantage over others. The purpose of this study is to examine the trend in the use of digitization and digitalization in implementing strategic intelligence in Ghana. A desktop review of literature is carried out using Boolean operator 'AND' and the components of strategic intelligence as the key words with Ghana as the focus. Out of a total 230 articles that are identified to reflect the concept, the study reveals customer intelligence as the most digitized or digitalized (52.2%) followed by knowledge management 43 (18.7%), business intelligence 21 (9.1%), motivating 15 (6.5%), systems thinking 10 (4.3%), partnering 10 (4.3%), foresight 8 (3.5%) and visioning 2 (0.9%). The term strategic intelligence itself which is a combination of all these nine other elements only obtains 1 article out of the 230 (representing 0.9%) indicating how unknown and new 'strategic intelligence' is in the business research and industry nomenclature in Ghana. The digital tools are used by both SMEs and larger enterprises. Some of the digitization tools mostly used in implementing strategic intelligence are CRMs, PMS, customer surveys, spreadsheets, BI softwares and Knowledge Management systems.

**Keywords:** strategic intelligence, business intelligence, competitor intelligence, knowledge management, customer intelligence, digitization, digitalization

### Introduction

#### Background and Rationale

One of the greatest prospects the fourth industrial revolution has presented is the need for data and information and their relevance to business decision making. Strategic intelligence is one of such fields that have seen growth in this era. Strategic intelligence has the potential to impact operational efficiency, improve decision making and enhance monitoring of the business environment. Globally, strategic intelligence (SI) is an emerging field of study in business research (Liebowitz, 2006) [17]. It has particular been a more familiar term in security and army intelligence than in business. In recent years however, strategic intelligence has become a relevant part of strategic management and effective business leadership globally. According to Alomian *et al.* (2019) [4], strategic intelligence has proven to be a strong competition differentiator in business. With the recent growth in the digitization and digitalization space, strategic intelligence implementation can even realize greater benefits (Brennen & Kreiss, 2016) [9].

However, there are scanty direct empirical data or literature on how many organizations are implementing strategic intelligence. In Ghana, the situation is not any different. Even worse is the large literature gap on how organizations are implementing strategic intelligence by employing technology, digitization or digitalization. Pellisier and Kruger (2011) noted in their study that many of the organizations they studied in the South African insurance sector for example are yet to accept and utilize technology platforms and systems into building a single-point management system for decision making like in the case of strategic intelligence implementation.

### Objectives

This study therefore seeks to use exiting literature to examine the trend of how businesses use digitization and digitalization in implementing strategic intelligence in Ghana. Specifically, the article seek to attain the following: Explore the form in which strategic intelligence (digitization and digitalization) exists in business organizations in Ghana and to what extent. The study will also identify the kinds of digitization and digitalization that exists in the implementation of such strategic intelligence in businesses in Ghana. Based on findings to make recommendations for further research, policy direction and organizational practice in this subject area.

### Literature Review

This section of the article explores past literature on the concept of strategic intelligence as well as digitization and digitalization. It extracts past scholarly works and use them as the foundation for formulating a conceptual framework for examining the trend being studied.

### Strategic intelligence

According to Kuosa (2014) [16], strategic intelligence is defined as the process and tools used in putting together, analyzing and using information to win competition. It depends greatly on making use of information and data sources both within and outside an organization. There are different theory schools on what constitutes the main elements of strategic intelligence. One theory group identifies strategic intelligence as a combination of business intelligence, competitive intelligence and knowledge management. Other scholars yet even add customer

intelligence as a fourth element (Liebowitz, 2006; Sadalia *et al.*, 2021) [17, 25].

**Business intelligence (BI)**

According to Jourdan *et al* (2008) [15], Business Intelligence refers to the tools and process that are used to collect, save and analyze data that are internally generated.

**Competitor intelligence (CI)**

Competitor or competitive Intelligence includes all the information collected together about a company’s competition, market and industry that helps it to have a long term advantage over others (Jourdan *et al.*, 2008) [15]. CI could be described as an organization looking at things from the lenses of its competitor and its related results.

**Knowledge Management (KM)**

McInerney, 2002 [22] explains that KM refers to the tools and activities that are used to create, collate, organize, store, transfer and make use of knowledge that exists in an organization to benefit it. These knowledge include tacit knowledge, implicit knowledge and explicit knowledge.

**Customer Intelligence (CSI)**

Except for scholars like Undie and Bepeh (2019) [26], very little is mentioned about customer intelligence as major intelligence source for strategic intelligence. It is mostly added to BI or CI. This research adopts CSI as the fourth major element of the SI framework to be used.

**Personality Dimensions of Strategic Intelligence**

Other theorists explain strategic intelligence to be made up of foresight, visioning, systems thinking, partnering and motivating. (Maccoby, 2001; Kuosa 2014; Maccoby & Scudder 2011) [18, 16, 19]. These are seen as personality competencies of business leaders, entrepreneurs and managers that influence their performance and are distinct from other leadership skills.

**Foresight**

Maccoby (2001) [18] explains foresight as the capacity to understand the intangible forces that influence the future of an organization and to appreciate what possible opportunities and challenges would impact the business.

**Systems thinking**

Systems thinking refers to all that is involved in considering an issue, process or entity as a complete whole and not as isolated pieces (Anderson & Johnson, 1997) [16]. It consists of connected members (features), linkages (how they are connected together and respond to each) and tasks (responsibility).

**Visioning**

Visioning is the combination of foresight and systems thinking and is an indication of a leader’s ability to fully anticipate the future of an organization. This occurs in a continuous process targeted at achieving intended goals by identifying existing opportunities in the business environs through motivation and encouragement. (Alomian *et al.*, 2019) [4],

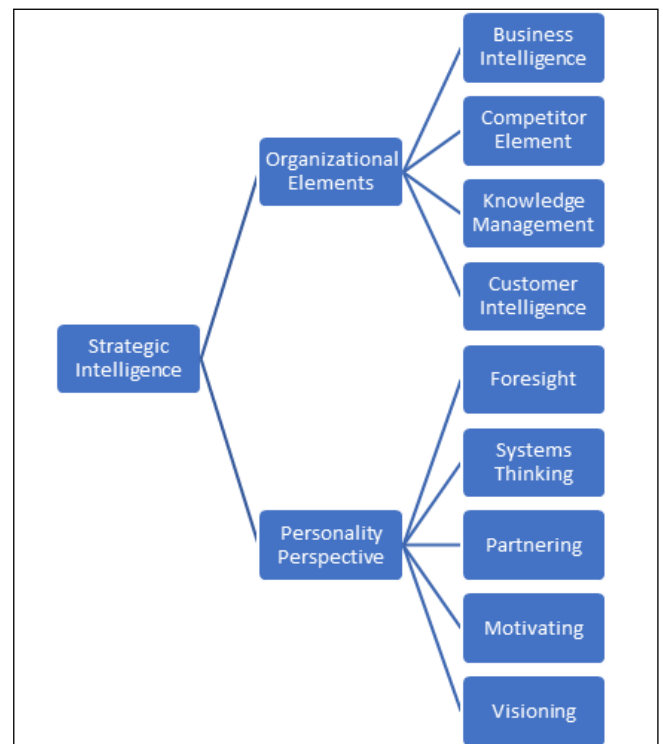
**Motivating**

Maccoby (2001) [18] defines motivating as the leader’s ability to encourage others to accept and buy into a common goal and support its realization. It is a differentiator between success and failure.

**Partnering**

Partnering refers to the leader’s ability to forge relationships with employees, competitors and suppliers that would support the realization of an organization’s goals (Maccoby, 2001) [18]. This means a successful leader sees the need for partnering others in other to achieve results.

This research would however adopt the conceptual leaning of scholars like Esmaeili (2014) who made a case for the combination both the organizational and human elements of SI.



**Fig 1:** Authors’ new conceptual framework of the components of strategic intelligence

**Digitization and Digitalization of strategic intelligence**

Even though they are mostly used interchangeably, the terms digitization and digitalization are not the same (Brennen & Kreiss, 2016) [9].

There is a clear difference between Digitization and Digitalization. Digitization refers to the process of converting manual and physical information into digital form (0s and 1s) and that can be stored by a computer (Ritter & Pedersen, 2020) [24]. According to Zhou (2019) [28], digitalization is the use of digital technologies and information to change business activities. Therefore whilst the focus of digitization is information, digitalization is aimed at business processes and activities that make up its operations. This study aligns with the use of both digitization and digitalization as being key in how technology can impact the implementation of strategic intelligence in organizations.

Digitization and digitalization techniques and tools include Internet of Things (IoT), 5G, Cloud, Blockchain, big data, artificial intelligence, ERP systems, automated emails and messaging, interactive displays, data collection systems and advanced analytics platforms. We also have social media and digital communication platforms, digital servitization tools, Customer Relationship Management (CRM) Softwares, Marketing and Sales Automation systems, e-commerce, websites, Online Analytical Processing (OLAP), visualization and dash-boarding, data mining, Geographic Information Systems (GIS), Decision Support Systems (DSS), Executive Information Systems (EIS), and Management Information Systems (MIS). There are also online directories and search engines, Knowledge Management Systems (KMS), Document Management Systems (DMS), Trend Analysis Softwares and Performance Management Systems (PMS).

**Materials and Method**

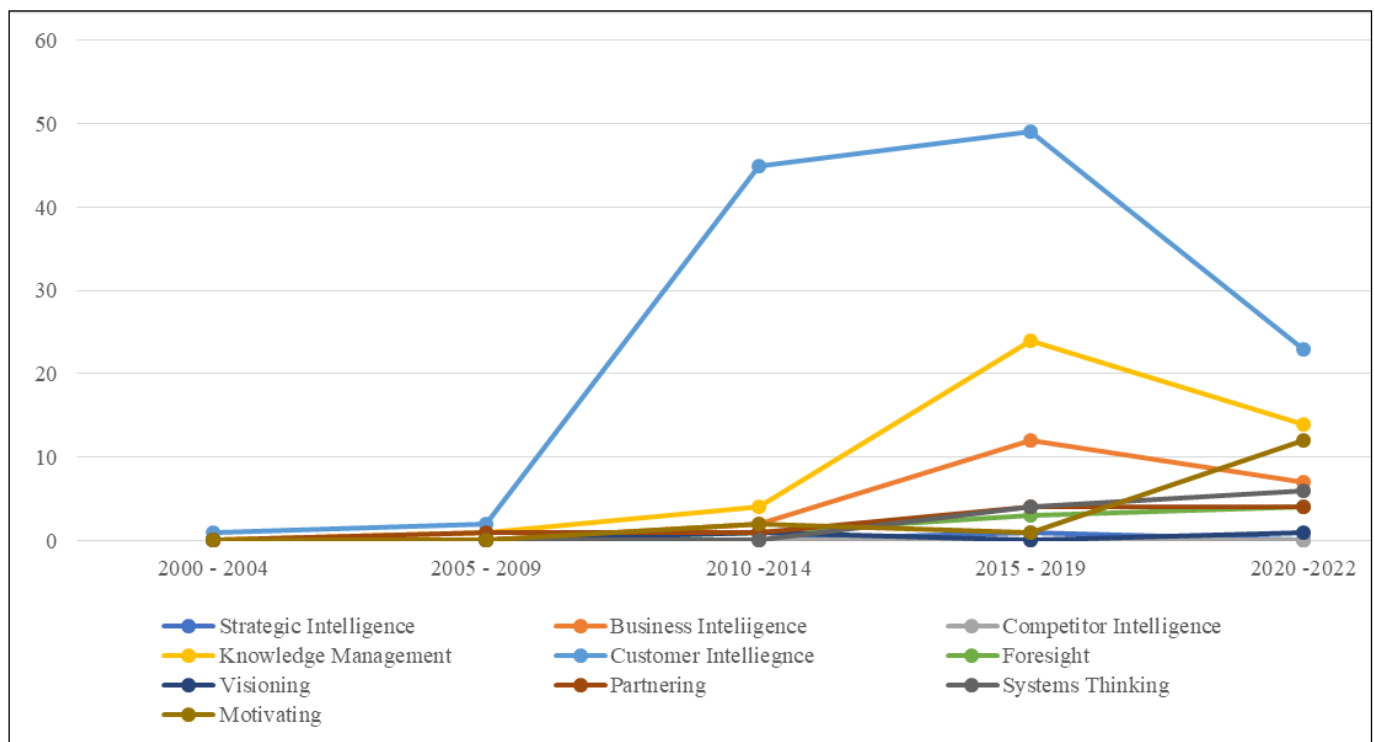
The method used at this section of analysis was influenced by the framework of Vial (2021) [27]. This involved running a desktop or online search for articles from peer-reviewed journals found in search engines like Google scholar that carry any of the key words from the topic or the main

elements and dimensions of strategic intelligence in Ghana as explained in the literature review. This approach uses the literature review as the basis of existence in literature and trend in practice. As was done by Vial (2021) [27], the authors limited the search to peer-reviewed articles and published books that focused on Ghana to manage the results. James and Van Ryzin (2017) [14] suggest that other unverified sources lack the credibility and rigor expected of a research article. To capture the changes over a reasonable period for an analysis to be done, a search and review was done from 2000 to 2022. Jourdan *et al.* (2008) [15] supports the authors believe that a little over two decades (22-year period) was substantial enough to notice significant changes that have occurred in the subject of study, owing to when digital technology was introduced and become significant in Ghana (Friedel, 2010) [11]. The study duration was broken into five-year terms.

The approach by Marmolejo-Saucedo and Hartmann (2020) [20] was used in capturing trend using the key words as seen in figure 2, combining them with the Boolean operators ‘AND’ or ‘+’ and digital tools and technologies mentioned earlier. In other not to exclude any element each of the seven (7) key dimensions of SI were used in the Boolean operation for the searches separately with the results shown in table 1. The operations were done one at a time.

**Table 1:** Results of Literature search on trend of digitization and digitalization of strategic intelligence in Ghana.

Period	Strategic Intelligence	Business Intelligence	Competitor Intelligence	Knowledge Management	Customer Intelligence	Foresight	Visioning	Partnering	Systems Thinking	Motivating
2000 -2004	0	0	0	0	1	0	0	0	0	0
2005 -2009	0	0	0	1	2	0	0	1	0	0
2010-2014	0	2	0	4	45	1	1	1	0	2
2015- 2019	1	12	0	24	49	3	0	4	4	1
2020 -2022	0	7	0	14	23	4	1	4	6	12
Total	1	21	0	43	120	8	2	10	10	15
Percentage	0.4%	9.1%	0.0%	18.7%	52.2%	3.5%	0.9%	4.3%	4.3%	6.5%



**Fig 2:** Results of Literature search on trend of digitization and digitalization of strategic intelligence in Ghana

### Discussion of Key Findings and Trend

The findings as shown in figure 2 are as discussed below to reflect the trends identified.

#### The form in which digitization and digitalization of strategic intelligence exist in businesses organizations in Ghana

From table 1 it is clear that Strategic intelligence through its digitization is more known in business organizations in Ghana by its nine (9) main elements that define it than by the term itself. The other nine (9) elements are featured more in the search (229) representing 99.6% of occurrence. Amongst the components that define SI, customer intelligence features most in the search 120 (52.2%). The others are knowledge management 43 (18.7%), business intelligence 21 (9.1%), motivating 15 (6.5%), systems thinking 10 (4.3%), partnering 10 (4.3%), foresight 8 (3.5%) and visioning 2 (0.9%). The occurrence of SI was just 1 out of 230 representing 0.4%. This emphasizes the fact that the use of the term 'strategic intelligence' in business research is very uncommon and relatively new.

Customer Intelligence is however very dominant in occurrence because many businesses study customer satisfaction using the customer surveys that are frequently conducted through several digital media and company websites.

Also, there were significant improvements every 5-year term over the 22-year period studied. This improvement is seen in figure 2 where 1 article was recorded in the 2000 - 2004 period (0.4%), to 4 articles in 2005-2009 (1.7%). There was a major improvement in the 2010-2014 (24.3%) period where 56 articles were recorded. This progressed further to 98 articles in the 2015-2019 period (42.6%). The recorded articles the 2020-2022 period was 23 (30%). This represents 3 out of the usual 5 years for every term indicating a strong sign of further growth over time.

#### The kinds of digitization and digitalization that exists in the implementation of strategic intelligence in businesses in Ghana

From table 1, the occurrence of research on how digital technologies have influenced the implementation of strategic intelligence witnessed significant growth from 2010. Online or web-based customer satisfaction surveys and CRMs have made customer intelligence more popular. This happens with most businesses especially SMEs. SMEs make up over 70% of businesses in Ghana. After customer intelligence, the next prominent growth witnessed over the period as shown in figure 2 is that of knowledge management.

These were largely accounted for by knowledge management systems that are used by banks, manufacturing, civil engineering, telecommunications companies and universities (Adjei & Dei, 2015; Assem & Pabbi, 2016) <sup>[2, 7]</sup>. There were several articles found that pointed to universities use of knowledge management systems especially because they are knowledge centers (Boateng *et al.*, 2014; Dei, 2017) <sup>[8]</sup>.

Financial institutions like banks, use Business Intelligence Tools and softwares for visualization like Microsoft Power BI (Owusu, 2017) <sup>[23]</sup>. They also use Performance Management Systems (PMS) and Enterprise Resource Planning (ERP) systems which featured highly in the search. They are used by large enterprises in banking,

manufacturing and services industries (Adade-Boafo, 2018; Frimpon, 2012) <sup>[1, 12]</sup>. The others like partnering, foresight, visioning, systems thinking and motivating were also seen to be have made some small and gradual growth over the 22-year period.

#### Recommendations for further research, organizational practice and policy

1. As a limitation to this study, there is the need for further empirical study of this phenomenon. More research should be focused on studying how strategic intelligence is being implemented with digitization and digitalization in Ghanaian enterprises (both SMEs and larger businesses).
2. The findings would deepen understanding and focus in this research area.
3. Attention should also be paid to researching and promoting the concept of digitizing strategic intelligence as a composite that covers all the other dimensions combined, as defined in this study and as well as its combined impact on businesses.
4. Specific focus in research can be given to how the concept of digitized or digitalized strategic intelligence can be used as a tool to improve the performance, growth and impact of SMEs in contributing to the country's economy. This is to boost the relatively low economic contribution of these SMEs.

#### Conclusion

Strategic intelligence and digitization are important parts of business management in order to beat competition and grow. This study examined the trend and extent of use of digitization and digitalization in the implementation of strategic intelligence in businesses in Ghana. A growth trend was noted when peer-reviewed articles that feature the subject over the past 22 years were desk-reviewed. As indicated in Vial's model (Vial, 2021) <sup>[27]</sup>, there has been significant growth in the use of digital tools and technologies in implementing strategic intelligence, even though still young not enough.

Digitization and digitalization of strategic intelligence is seen more with customer intelligence (52.2%) than the other elements that define it. Knowledge management was the next most digitized (18.7%) followed by business intelligence (9.1%) and the others. The term 'strategic intelligence' itself is new, mostly unknown to be composed of the other nine elements explored earlier (business intelligence, competitor intelligence, knowledge management, customer intelligence, visioning, partnering, systems thinking, foresight and motivating).

Digitized application of strategic intelligence that was featured mostly included CRMs, online or web-based customer feedback surveys and spreadsheets. These tools (especially the surveys and spreadsheets) were seen with both large enterprises and SMEs. Other notable digitization tools were knowledge management systems (used by most educational institutions), ERPs, PMS and other business intelligence systems which are mostly employed by large enterprises especially in competitive industries like banking or financial, manufacturing sectors.

Due to the study's limitation, a recommendation is made for an empirical study on the subject that focuses on both the SMEs and large enterprises and can influence policy based on the findings made.

## References

1. Adade-Boafo A. Successful strategies for implementing an enterprise resource planning system (Doctoral dissertation, Walden University), 2018.
2. Adjei KOK, Dei DGJ. Assessing implementation of knowledge management systems in banks, a case of Ghana. *Journal of Information and Knowledge Management*,2015:5(1):133-139.
3. Ahmadi M, Baei F, Hosseini-Amiri SM, Moarefi A, Suifan TS, Sweis R. Proposing a model of manager's strategic intelligence, organization development, and entrepreneurial behavior in organizations. *Journal of Management Development*, 2020.
4. Alomian NR, Alsawalhah AA, Almarshad MN. The Impact of Strategic Intelligence on Achieving Competitive Advantage: Applied Study on the Pharmaceutical Companies Sector in Jordan. *International Journal of Business and Social Science*,2019:10(4):66-74.
5. Amanamah RB, Morrison A, Asiedu K. Computerized accounting systems usage by small and medium scale enterprises in Kumasi Metropolis, Ghana. *Research Journal of Finance and Accounting*,2016:7(16):16-29.
6. Anderson V, Johnson L. *Systems thinking basics* Cambridge, MA: Pegasus Communications, 1997, 1-14.
7. Assem PB, Pabbi KA. Knowledge sharing among healthcare professionals in Ghana. *VINE Journal of Information and Knowledge Management Systems*, 2016.
8. Boateng H, Dzandu MD, Tang Y. An investigation into knowledge acquisition idiosyncrasies in Ghanaian universities. *VINE: The journal of information and knowledge management systems*, 2014.
9. Brennen JS, Kreiss D. Digitalization. The international encyclopedia of communication theory and philosophy, 2016, 1-11.
10. Esmaeili MR. A Study on the effect of the strategic intelligence on decision making and strategic planning. *International Journal of Asian Social Science*,2014:4(10):1045-1061.
11. Friedel R. *A culture of improvement: Technology and the Western millennium*. Mit Press, 2010.
12. Frimpon MF. A project approach to enterprise resource planning implementation. *International journal of business and management*,2012:7(10):116.
13. Inmon WH. *SAP and data warehousing*. In *Data Warehousing Vieweg+ Teubner Verlag*, Wiesbaden, 1999, 113-134.
14. James O, Van Ryzin GG. Incredibly good performance: An experimental study of source and level effects on the credibility of government. *The American Review of Public Administration*,2017:47(1):23-35.
15. Jourdan Z, Rainer RK, Marshall TE. *Business intelligence: An analysis of the literature*. *Information systems management*,2008:25(2):121-131.
16. Kuosa T. *Towards strategic intelligence: foresight, intelligence, and policy-making*. *Dynamic Futures*, 2014.
17. Liebowitz J. *Strategic intelligence: business intelligence, competitive intelligence, and knowledge management*. Auerbach Publications, 2006.
18. Maccoby M. *The human side: Successful leaders employ strategic intelligence*. *Research-Technology Management*,2001:44(3):58-60.
19. Maccoby M, Scudder T. Strategic intelligence: A conceptual system of leadership for change. *Performance Improvement*,2011:50(3):32-40.
20. Marmolejo-Saucedo J, Hartmann S. Trends in digitization of the supply chain: A brief literature review. *EAI Endorsed Transactions on Energy Web*, Meadows, D. H. (2008). *Thinking in systems: A primer*. Chelsea green publishing, 2020, 2008, 7(29).
21. Meadows DH. *Thinking in systems: A primer*. Chelsea green publishing, 2008.
22. McInerney C. Knowledge management and the dynamic nature of knowledge. *Journal of the American society for Information Science and Technology*,2002:53(12):1009-1018.
23. Owusu A. Business intelligence systems and bank performance in Ghana: The balanced scorecard approach. *Cogent Business & Management*,2017:4(1):1364056.
24. Ritter T, Pedersen CL. Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*,2020:86:180-190.
25. Sadalia I, Irawati N, Syahfitri I, Erisma N. The Impact of Strategic Intelligence on Entrepreneurial Behaviour and Organizational Development. In *3rd International Conference on Business and Management of Technology (ICONBMT 2021)* Atlantis Press, 2021, 252-256.
26. Undie D, Bepeh S. *Managers' strategic intelligence practices and decision-making for longterm competitiveness in cassava flour retailing in Cross River State* (Doctoral dissertation, Doctoral thesis, University of Uyo). University of Uyo Library, 2019.
27. Vial G. *Understanding digital transformation: A review and a research agenda*. *Managing Digital Transformation*, 2021, 13-66.
28. Zhou F. *Gaining Competitive Advantage through Digital Transformation*, 2019.