Entrepreneurial Insights From Data to Strategic Intelligence Driving the Sustainable Development Goals

Lucian Theodoric de Koker and Tanya du Plessis
University of Johannesburg, Johannesburg, South Africa

luciand@uj.ac.za
tduplessis@uj.ac.za

Abstract: The United Nations Sustainable Development Goals (SDGs) adopted in 2015 provide a basis to address global challenges. The SDGs are aimed at eradicating poverty, protecting the planet, and to ensure prosperity for all. In this context, achieving the SDGs demands innovative solutions in entrepreneurship, particularly within the everchanging volatile, uncertain, complex, and ambiguous (VUCA) world. The emergence and continuous development of technologies such as Artificial Intelligence (AI), Big Data, Blockchain, and Robotics continues to reshape the global landscape, further contributing to the VUCA world. Structured content analysis was done on 50 World Economic Forum (WEF) Strategic Intelligence Topics (SITs) articles. The research findings from the content analysis communicate an insightful message, that the analysed WEF SITs articles resonate towards the importance of strategic - data, information, intelligence, and innovation, for strategic intelligence. This paper underpins the importance of strategic intelligence, in empowering entrepreneurs to effectively navigate the VUCA world to drive impactful growth towards the SDGs. In the VUCA world, entrepreneurs must harness the power of AI to identify emerging opportunities and anticipate potential disruptions, transforming raw data into actionable intelligence. This intelligence translates to strategic decision-making, enabling the development of innovative solutions to address VUCA world challenges, contributing to the attainment of the SDGs. It is crucial that entrepreneurs recognise the challenges of the VUCA world in order for them to contribute meaningfully to achieving the SDGs. Through the message relayed in the 50 WEF SITs articles, it is clear that the VUCA world will continue to accelerate, coupled with the transformative potential of emerging technologies, which presents opportunities for entrepreneurial insights to be achieved, by moving from data to strategic intelligence to drive the SDGs. Finally, this paper emphasises the importance for entrepreneurs to embrace a pre-emptive, agile approach in driving the achievement of the SDGs within the constantly evolving VUCA world, to work towards achieving the SDGs through strategic intelligence.

Keywords: Artificial Intelligence, Emerging Technologies, Entrepreneurship, Strategic Intelligence, Sustainable Development Goals, VUCA

1. Introduction

Achieving the Sustainable Development Goals (SDGs) demands innovative solutions in entrepreneurship, particularly within the everchanging volatile, uncertain, complex, and ambiguous (VUCA) world. In the continuously changing VUCA world, entrepreneurs must be cognisant of the opportunities presented through emerging technologies. A wide variety of technology driven tools assist decision makers to benefit from functional information output, for example, Artificial Intelligence (AI) output. AI potentially engages critical thinkers in the form of insights for strategic decision-making. It is important to note the phrase “potentially engages” because predictive skill and critical thinking differ from person to person and AI to AI. Most people with the assistance of generative AI will make the logical prediction that after Humpty follows Dumpty. The critical thinker is the entrepreneur with the strategic insight that the current market has an appetite for scrambled egg at the exact moment Humpty Dumpty falls. When Humpty Dumpty falls, the critical thinker is the entrepreneur with the foresight of having a heated pan with all ingredients ready and the physical ability to prepare an omelette to serve customers a wholesome meal. On the other hand, the lethargic non-thinker will consume a video of Humpty’s trickery in chocolate egg mythology. In other words, in the VUCA world, entrepreneurs must be critical thinkers with an understanding of real-world functional information.

Functional information quantifies the state of complex systems in numerous different configurations of data transforming it into information and intelligence (Wong et al, 2023). AI has in recent years accelerated the growth of data therefore it is important to investigate opportunities for entrepreneurs to gather meaningful insights. The problem addressed by this paper is the lack of a structured method to aid entrepreneurs to move from data to strategic entrepreneurial insights in the VUCA world. The research question is: What are the steps required to move from data, to information, to intelligence to ultimately assist entrepreneurs to arrive at strategic intelligence?

To answer the research question, this paper presents the findings of the content analysis on 50 WEF SITs articles using the structured and systematic nominal ranking technique (NRT) methodology, which provided valuable

insights. The objective of this research paper is to illuminate how entrepreneurial insights can be gained in the process from data into strategic intelligence, that can be used to drive the SDGs.

2. Entrepreneurial Insights From Data to Strategic Intelligence to Drive the SDGs

Strategic intelligence can be defined as "a systematic and continuous process of producing needed intelligence of strategic value in an actionable form to facilitate long-term decision-making" (Fernández-Villacañas Marín, 2015). Strategic intelligence is about the timely sourcing and efficient management of relevant information (Azzam & Beckmann, 2024). Functional information that is timely sourced and efficiently managed becomes strategic intelligence. In order for entrepreneurs to be actively aware of challenges and opportunities in the VUCA world, requires strategic intelligence.

Many researchers attribute to the world becoming increasingly VUCA: volatile, uncertain, complex, and ambiguous (Wakelin-Theron, Ukpere & Spowart, 2019; Jansen van Vuuren, Visser & Du Plessis, 2022; Salim, Khan, Rahman, Asif, Amin & Khan, 2025). The VUCA world is a result of many rapid changes in the political, environmental, social, and technological spheres (Kruger & Barkhuizen, 2024; Zenk et al, 2024). The challenges and opportunities presented by the VUCA world include to a great extend what is offered by emerging technologies as well as future technologies (Reilly-King, Duggan & Wilner, 2024; Dugoin-Clément, 2024; Manzur et al, 2024). For example, technologies such as blockchain, robotics, and AI for SDGs, have changed the nature and scope of entrepreneurial activity (Chalmers, MacKenzie & Carter, 2021; Salim et al, 2025).

With the uptake and use of AI in almost every industry, the world is currently experiencing the biggest surge of AI interest (Amiri et al, 2024), leading to data growing exponentially. Azzam and Beckmann (2024) further raises the matter of emerging technologies contributing to the volume of unstructured, structured, and qualitative data that must be screened continuously for strategic relevance. Azzam and Beckmann (2024) explains that the extensive growth of data poses severe problems of volume and complexity. Amid these challenges, Sreenivasan, Singh and Suresh (2025) encourages entrepreneurs to innovate through AI.

Through the acceleration of AI, the tremendous growth in data presents opportunities entrepreneurs can tap into and benefit from. AI enables computers to process large unstructured data sets using complex and adaptive algorithms to perform tasks normally requiring human intelligence (Chalmers, MacKenzie & Carter, 2021). The ability of AI to process big data, provide actionable insights, and to automate decision-making processes has changed how traditional businesses and entrepreneurs operate (Ali et al, 2024). With AI being able to leverage big data and learn algorithms to precisely predict phenomena, the big data can be turned into identifying entrepreneurial opportunities for exploitation (Chalmers, MacKenzie & Carter, 2021).

3. Research Methodology

Content analysis on 50 World Economic Forum (WEF) Strategic Intelligence Topics (SITs) articles were employed. The content analysis followed a structured and systematic process named the NRT methodology. The content analysis of the WEF SITs articles for this study was adapted and stemmed from prior research done by De Koker (2019). The NRT methodology was later expanded, tested and applied for purposes of another study by De Koker and Du Plessis (2024). The NRT methodology employed on the 50 WEF SITs articles stem from a PhD study which entailed a much larger content analysis component than can be reported in this research paper. This research paper reports only on a portion aimed at developing a structured method that will aid entrepreneurs to move from data to strategic entrepreneurial insights in the VUCA world. The NRT methodology even though structured and systematic, is flexible and can be adapted to accommodate the needs for the particular research being conducted. It is however important to follow the basic structured and systematic principles of the NRT methodology.

There are four primary elements that constitute the NRT methodology, these are; 1) Standard of inclusion, 2) Data cleansing linked to the Pareto principle, 3) Relationship of data, information and intelligence linked to the Pareto principle, and 4) VARCS principles. VARCS refer to the validity, accuracy, reliability, credibility, and sufficiency of data, information and intelligence. The four primary elements of the NRT methodology form the foundation on which the structured and systematic principles are based. Particularly adapted for the content analysis of the 50 WEF SITs articles, the NRT methodology adhered to the four primary elements. The 50 WEF SITs articles were purposively selected. Purposive sampling was selected as the appropriate sampling technique, which allowed for own judgement to be applied in the selection of the 50 WEF SITs articles (Saunders, Lewis & Thornhill, 2016).

The NRT methodology specifically for the 50 WEF SITs articles followed a seven-step process, distinctively determined to adhere to the four primary principles. The seven-step process was - Step 1: Accessing and selecting the WEF SITs articles, Step 2: Defining WEF SITs articles inclusion criteria, Step 3: NRT WEF SITs articles, Step 4: WEF SITs articles keyword frequency and top 5 keywords, Step 5: Post-NRT WEF SITs articles, Step 6: Strategic Intelligence articles, and Step 7: Strategic Intelligence-Relevant articles. Figure 1 illustrates the seven steps.

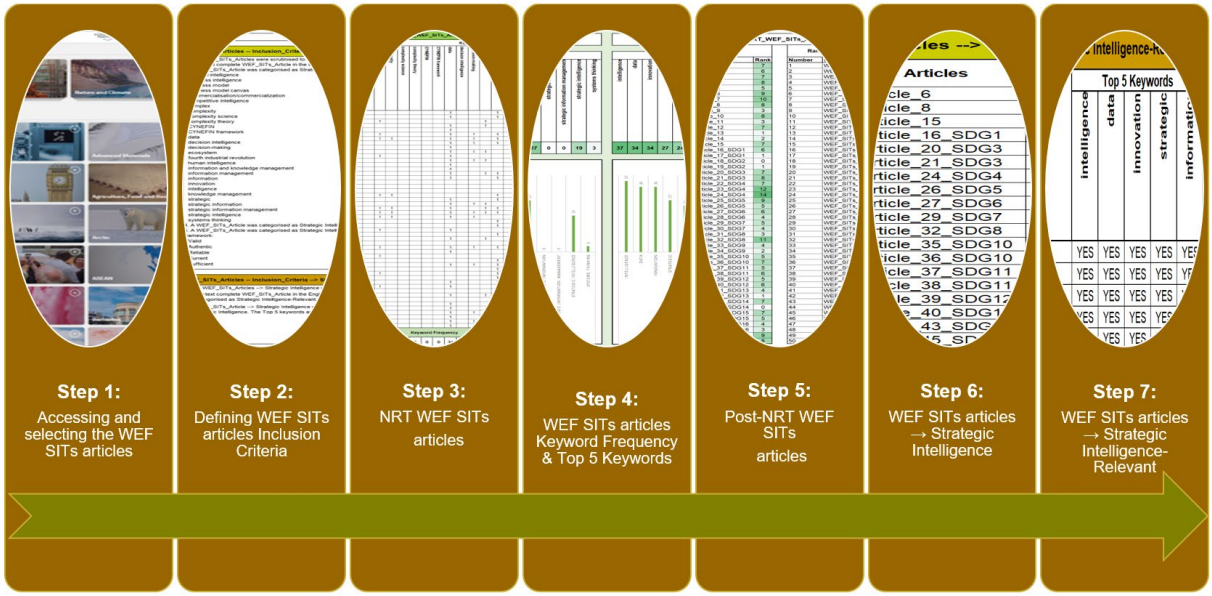

Figure 1: Seven steps of the NRT methodology (own source developed for this study, 2025)

In Step 2: Defining WEF SITs articles inclusion criteria, certain keywords were purposively pre-determined, which stems from the PhD study. The rationale for inclusion and exclusion of WEF SITs articles is justified in relation to the research goals described by De Koker (2025). For the purpose of this paper, as an excerpt of the larger PhD study, the keywords are: (artificial intelligence, business intelligence, business model, business model canvas, commercialisation/commercialization, competitive intelligence, complex, complexity, complexity science, complexity theory, Cynefin, Cynefin framework, data, decision intelligence, decision-making, ecosystem, fourth industrial revolution, human intelligence, information and knowledge management, information management, information, innovation, intelligence, knowledge management, strategic, strategic information, strategic information management, strategic intelligence, and systems thinking). The results and discussion section will further elaborate on the NRT methodology followed for the 50 WEF SITs articles. The NRT methodology demonstrates the steps of functional information that entrepreneurs require to move from data to information, to intelligence.

4. Results and Discussion

The results and discussion section expounds on the seven-step process followed in the distinctive NRT methodology for 50 WEF SITs articles. The 50 WEF SITs articles were found and accessed on the WEF's Strategic Intelligence platform.

4.1 Step 1: Accessing and Selecting the WEF SITs Articles

After access was acquired on the WEF Strategic Intelligence Platform, the WEF SITs articles could be selected. At the time of selecting the WEF SITs articles there were 333 topics on the WEF Strategic Intelligence Platform, in which the articles could be selected. The researcher purposively selected the top 15 WEF SITs articles from the 333 combined topics. The remaining 35 WEF SITs articles were also purposively selected from the SDGs topics on the WEF Strategic Intelligence platform.

4.2 Step 2: Defining WEF SITs Articles Inclusion Criteria

After ensuring access to the WEF Strategic Intelligence platform and ensuring that articles could be selected and downloaded for use, specific inclusion criteria were determined. In the same manner the inclusion criteria were

determined purposively to ensure reliability and validity of the research. Two types of inclusion criteria were determined, namely (1) Strategic Intelligence and (2) Strategic Intelligence-Relevant. The two types of inclusion criteria would help to categorise WEF SITs articles accordingly. Expounded in Step 6 and 7.

4.3 Step 3: NRT WEF SITs Articles

The NRT of the 50 WEF SITs articles determined the top 5 keywords. The top 5 keywords stems from the pre-determined list of keywords mentioned earlier in the Research Methodology section. The NRT WEF SITs articles should not be confused with the NRT methodology of WEF SITs articles. The NRT WEF SITs articles is a step in the entire process of the NRT methodology of WEF SITs articles. In the NRT WEF SITs articles step, the 50 WEF SITs articles that was selected from the WEF Strategic Intelligence platform were scrutinised to determine which of all the keywords mentioned in the Research Methodology section are present in the 50 WEF SITs articles. This leads to the next step, where the top 5 keywords were determined based on ranking scores.

As an example to illustrate Step3: NRT WEF SITs articles - WEF SIT article 1 illustrates the presence of 7 keywords. Therefore, for each keyword found in WEF SIT article 1 the number 1 was assigned, with the keywords found in WEF SIT article 1 being i. Artificial Intelligence, ii. business model, iii. data, iv. Fourth Industrial Revolution, v. innovation, vi. intelligence, and vii. strategic. This is illustrated in Figure 2.

NRT_WEF_SITs_Articles																														
Number	WEF SITs Articles	KEYWORDS																												Rank
		artificial intelligence	business intelligence	business model	business model canvas	commercialisation/commercialization	competitive intelligence	complex	complexity	complexity science	complexity theory	Cynefin	Cynefin framework	data	decision intelligence	decision-making	ecosystem	fourth industrial revolution	human intelligence	information and knowledge management	information management	information	innovation	intelligence	knowledge management	strategic	strategic information	strategic information management	strategic intelligence	systems thinking	
1	WEF_SITs_Article_1	1		1										1				1					1	1		1					7
2	WEF_SITs_Article_2	1												1				1				1	1	1							6
3	WEF_SITs_Article_3	1		1				1									1					1	1	1							7
4	WEF_SITs_Article_4	1		1										1			1					1	1	1		1					8
5	WEF_SITs_Article_5	1												1								1	1	1							5
6	WEF_SITs_Article_6							1						1		1		1				1	1	1		1			1		9
7	WEF_SITs_Article_7	1						1	1					1		1		1	1			1	1	1							10
8	WEF_SITs_Article_8	1												1		1		1					1	1		1			1		8
9	WEF_SITs_Article_9			1										1								1									3
10	WEF_SITs_Article_10	1												1		1	1					1	1	1		1					8
11	WEF_SITs_Article_11							1						1										1							3
12	WEF_SITs_Article_12													1		1	1				1	1	1			1					7
13	WEF_SITs_Article_13													1																	1
14	WEF_SITs_Article_14													1								1									2

Figure 2: NRT WEF SITs articles (own source developed for this study, 2025)

The strategic implications for entrepreneurial practice derived from the WEF SITs articles are linked to the frequent keywords. However, a discussion of the keywords is not the aim of this paper, instead the aim is to identify the steps required to move from data, to information, to intelligence to ultimately assist entrepreneurs to arrive at strategic intelligence.

4.4 Step 4: WEF SITs Articles Keyword Frequency and top 5 Keywords

Figure 3 illustrates the ranking that each keyword tallied up to. The keyword “intelligence” ranked the highest with 37 out of 50, meaning that the keyword “intelligence” is present in 37 WEF SITs articles. The keywords “business model canvas”, “competitive intelligence”, “complexity science”, “complexity theory”, “Cynefin”, “Cynefin framework”, “decision intelligence”, “information and knowledge management”, “strategic information”, and “strategic information management” ranked the lowest with 0 out of 50, meaning that the keywords were not present in any of the 50 WEF SITs articles.

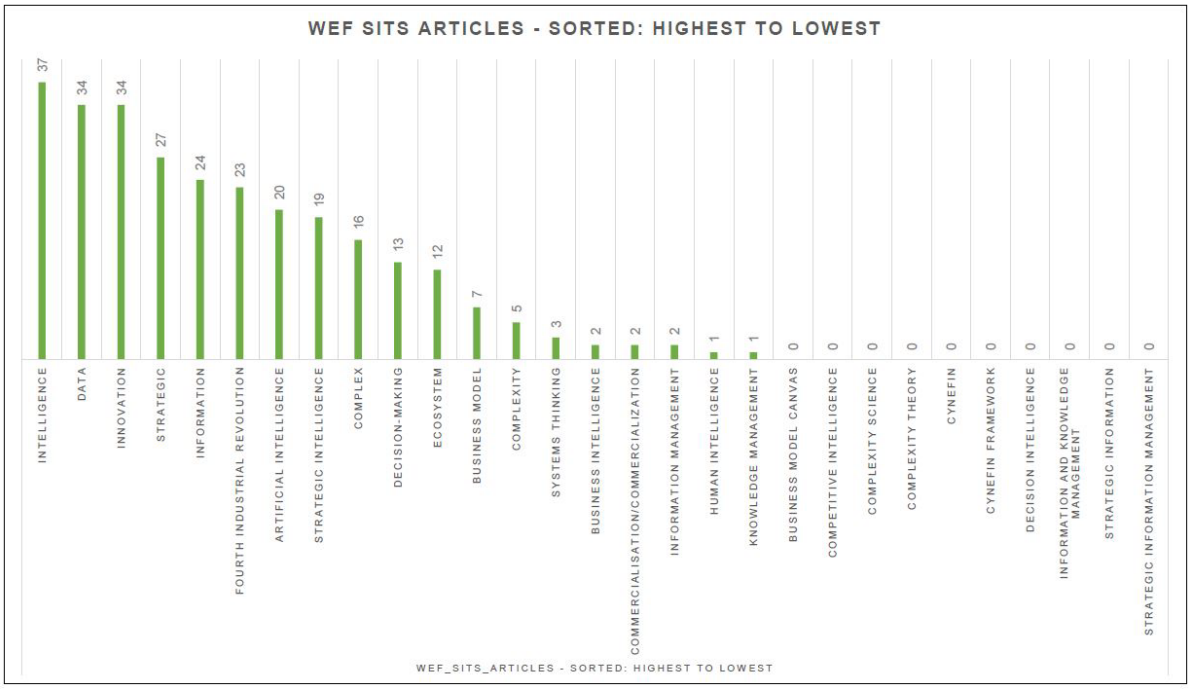

Figure 3: Keyword frequency (own source developed for this study, 2025)

In the 50 WEF SITs articles, it can be interpreted from the top 5 keywords, that the authors mainly focused on the importance of including the keywords - intelligence, data, innovation, strategic, and information. The message behind the top 5 keywords relays the important message that in the 50 WEF SITs articles written by experts from universities, think-tanks, international organisations, and other research institutions that businesses and entrepreneurs are concerned about the strategic nature and use of data, information, and intelligence for strategic decision-making.

4.5 Step 5: Post-NRT WEF SITs Articles

The rank for each of the WEF SITs articles are illustrated in Table 1. The WEF SITs articles are ranked according to how many of the 29 keywords were present in each of the WEF SITs articles.

All the WEF SITs articles had keywords present, except for WEF_SITs_Article_18_SDG2 and WEF_SITs_Article_44_SDG14.

Table 1: Ranked WEF SITs articles

Ranked WEF_SITs_articles					
Ranked - Unsorted			Ranked - Sorted: Highest to Lowest		
Number	WEF_SITs_Articles	Rank	Number	WEF_SITs_Articles	Rank
1	WEF_SITs_Article_1	7	1	WEF_SITs_Article_24_SDG4	14
2	WEF_SITs_Article_2	6	2	WEF_SITs_Article_23_SDG4	12
3	WEF_SITs_Article_3	7	3	WEF_SITs_Article_32_SDG8	11
4	WEF_SITs_Article_4	8	4	WEF_SITs_Article_7	10
5	WEF_SITs_Article_5	5	5	WEF_SITs_Article_6	9
6	WEF_SITs_Article_6	9	6	WEF_SITs_Article_25_SDG5	9
7	WEF_SITs_Article_7	10	7	WEF_SITs_Article_49_SDG17	9
8	WEF_SITs_Article_8	8	8	WEF_SITs_Article_4	8

Ranked WEF_SITs_articles

Ranked - Unsorted

Number	WEF_SITs_Articles	Rank
9	WEF_SITs_Article_9	3
10	WEF_SITs_Article_10	8
11	WEF_SITs_Article_11	3
12	WEF_SITs_Article_12	7
13	WEF_SITs_Article_13	1
14	WEF_SITs_Article_14	2
15	WEF_SITs_Article_15	7
16	WEF_SITs_Article_16_SDG1	6
17	WEF_SITs_Article_17_SDG1	1
18	WEF_SITs_Article_18_SDG2	0
19	WEF_SITs_Article_19_SDG2	1
20	WEF_SITs_Article_20_SDG3	7
21	WEF_SITs_Article_21_SDG3	8
22	WEF_SITs_Article_22_SDG4	7
23	WEF_SITs_Article_23_SDG4	12
24	WEF_SITs_Article_24_SDG4	14
25	WEF_SITs_Article_25_SDG5	9
26	WEF_SITs_Article_26_SDG5	5
27	WEF_SITs_Article_27_SDG6	6
28	WEF_SITs_Article_28_SDG6	4
29	WEF_SITs_Article_29_SDG7	5
30	WEF_SITs_Article_30_SDG7	4
31	WEF_SITs_Article_31_SDG8	3
32	WEF_SITs_Article_32_SDG8	11
33	WEF_SITs_Article_33_SDG9	4
34	WEF_SITs_Article_34_SDG9	2
35	WEF_SITs_Article_35_SDG10	5
36	WEF_SITs_Article_36_SDG10	7
37	WEF_SITs_Article_37_SDG11	5
38	WEF_SITs_Article_38_SDG11	6
39	WEF_SITs_Article_39_SDG12	5
40	WEF_SITs_Article_40_SDG12	6
41	WEF_SITs_Article_41_SDG13	4
42	WEF_SITs_Article_42_SDG13	1
43	WEF_SITs_Article_43_SDG14	7
44	WEF_SITs_Article_44_SDG14	0
45	WEF_SITs_Article_45_SDG15	7
46	WEF_SITs_Article_46_SDG15	5
47	WEF_SITs_Article_47_SDG16	4

Ranked - Sorted: Highest to Lowest

Number	WEF_SITs_Articles	Rank
9	WEF_SITs_Article_8	8
10	WEF_SITs_Article_10	8
11	WEF_SITs_Article_21_SDG3	8
12	WEF_SITs_Article_50_SDG17	8
13	WEF_SITs_Article_1	7
14	WEF_SITs_Article_3	7
15	WEF_SITs_Article_12	7
16	WEF_SITs_Article_15	7
17	WEF_SITs_Article_20_SDG3	7
18	WEF_SITs_Article_22_SDG4	7
19	WEF_SITs_Article_36_SDG10	7
20	WEF_SITs_Article_43_SDG14	7
21	WEF_SITs_Article_45_SDG15	7
22	WEF_SITs_Article_2	6
23	WEF_SITs_Article_16_SDG1	6
24	WEF_SITs_Article_27_SDG6	6
25	WEF_SITs_Article_38_SDG11	6
26	WEF_SITs_Article_40_SDG12	6
27	WEF_SITs_Article_5	5
28	WEF_SITs_Article_26_SDG5	5
29	WEF_SITs_Article_29_SDG7	5
30	WEF_SITs_Article_35_SDG10	5
31	WEF_SITs_Article_37_SDG11	5
32	WEF_SITs_Article_39_SDG12	5
33	WEF_SITs_Article_46_SDG15	5
34	WEF_SITs_Article_28_SDG6	4
35	WEF_SITs_Article_30_SDG7	4
36	WEF_SITs_Article_33_SDG9	4
37	WEF_SITs_Article_41_SDG13	4
38	WEF_SITs_Article_47_SDG16	4
39	WEF_SITs_Article_9	3
40	WEF_SITs_Article_11	3
41	WEF_SITs_Article_31_SDG8	3
42	WEF_SITs_Article_48_SDG16	3
43	WEF_SITs_Article_14	2
44	WEF_SITs_Article_34_SDG9	2
45	WEF_SITs_Article_13	1
46	WEF_SITs_Article_17_SDG1	1
47	WEF_SITs_Article_19_SDG2	1

Ranked WEF_SITs_articles					
Ranked - Unsorted			**Ranked - Sorted: Highest to Lowest**		
Number	**WEF_SITs_Articles**	**Rank**	**Number**	**WEF_SITs_Articles**	**Rank**
48	WEF_SITs_Article_48_SDG16	3	48	WEF_SITs_Article_42_SDG13	1
49	WEF_SITs_Article_49_SDG17	9	49	WEF_SITs_Article_18_SDG2	0
50	WEF_SITs_Article_50_SDG17	8	50	WEF_SITs_Article_44_SDG14	0

4.6 Step 6: Strategic Intelligence Articles

The inclusion criteria for Strategic Intelligence, determined 19 Strategic Intelligence articles from the 50 WEF SITs articles. The inclusion criteria used were:

1. A full-text complete article in the English language, was categorised as Strategic Intelligence.
2. A WEF SITs article was categorised as Strategic Intelligence, if any of the purposively pre-determined keywords mentioned in the Research Methodology section were present in the WEF SITs article.
3. A WEF SITs article was categorised as Strategic Intelligence, if the keyword "Strategic Intelligence" was present in the WEF SITs article.
4. A WEF SITs article was categorised as Strategic Intelligence, if the information in the WEF SITs article exhibited the characteristics of the VARCS framework: Valid, Authentic, Reliable, Current, and Sufficient.

The 19 Strategic Intelligence articles exhibited all the inclusion criteria stipulated here in Step 6 and are illustrated in Table 2.

Table 2: Strategic Intelligence articles

Strategic Intelligence Articles		
Number	**WEF SITs Articles**	**Keyword**
		Strategic Intelligence
1	WEF SITs Article 6	YES
2	WEF SITs Article 8	YES
3	WEF SITs Article 15	YES
4	WEF SITs Article 16 SDG1	YES
5	WEF SITs Article 20 SDG3	YES
6	WEF SITs Article 21 SDG3	YES
7	WEF SITs Article 24 SDG4	YES
8	WEF SITs Article 26 SDG5	YES
9	WEF SITs Article 27 SDG6	YES
10	WEF SITs Article 29 SDG7	YES
11	WEF SITs Article 32 SDG8	YES
12	WEF SITs Article 35 SDG10	YES
13	WEF SITs Article 36 SDG10	YES
14	WEF SITs Article 37 SDG11	YES
15	WEF SITs Article 38 SDG11	YES
16	WEF SITs Article 39 SDG12	YES
17	WEF SITs Article 40 SDG12	YES

Strategic Intelligence Articles		
Number	WEF SITs Articles	Keyword
		Strategic Intelligence
18	WEF SITs Article 43 SDG14	YES
19	WEF SITs Article 45 SDG15	YES

4.7 Step 7: Strategic Intelligence-Relevant Articles

The inclusion criteria for Strategic Intelligence-Relevant, ultimately determined 5 Strategic Intelligence-Relevant articles from the 19 Strategic Intelligence articles. The purposively pre-determined keywords mentioned in the Research Methodology section, played a crucial part in determining the 5 Strategic Intelligence-Relevant articles. The inclusion criteria used were:

1. A full-text complete WEF SITs article in the English language, that exhibits the same characteristics as that of a Strategic Intelligence article, was categorised as a Strategic Intelligence-Relevant article.
2. A Strategic Intelligence article was categorised as a Strategic Intelligence-Relevant article, if the top 5 keywords were present in the Strategic Intelligence article. The top 5 keywords are: intelligence, data, innovation, strategic, and information.

The 5 Strategic Intelligence-Relevant articles exhibited all the inclusion criteria stipulated here in Step 7 and are illustrated in Table 3.

Table 3: Strategic Intelligence-Relevant articles

Strategic Intelligence-Relevant Articles						
Number	WEF SITs articles	Top 5 Keywords				
		intelligence	data	innovation	strategic	Information
1	WEF SITs Article 6	YES	YES	YES	YES	YES
2	WEF SITs Article 21 SDG3	YES	YES	YES	YES	YES
3	WEF SITs Article 24 SDG4	YES	YES	YES	YES	YES
4	WEF SITs Article 32 SDG8	YES	YES	YES	YES	YES
5	WEF SITs Article 45 SDG15	YES	YES	YES	YES	YES

Not only was it important to determine if the articles contained the keyword Strategic Intelligence, the researcher went further to determine whether the top 5 keywords, intelligence, data, innovation, strategic, and information, were indeed present in the Strategic Intelligence articles. The complexity of all the interrelated elements is evident of the VUCA world in which entrepreneurs operate.

This study has practical relevance as to how the findings could inform entrepreneurial decision-making. Firstly, entrepreneurs must conceptualise functional information in the VUCA world. The idea of functional information was introduced in biochemistry in 2003 and has since developed into the general AI principle that systems become increasingly complex over time (Szostak, 2003; Fresco, Ginsburg & Jablonka, 2020; Górriz, et al, 2023; Wong et al, 2023). Secondly, in the complex systems of the VUCA world, the NRT methodology details the steps that are required to move from data, to information, to intelligence to ultimately assist entrepreneurs to arrive at strategic intelligence. The NRT methodology allows entrepreneurs to navigate complex systems that share the following characteristics:

- Diverse interacting components that interact in countless ways.
- Variety of mechanisms for generating numerous configurations of components.

- Multiple selecting for a single function aimed at novelty generation.
- Iterative implementing of feedback loops for continuous improvement.

These characteristics will allow entrepreneurs to persist and explore new spaces that could never be explored before without the assistance of AI. Currently, AI allows for open ended possibilities. Thirdly, from the structured content analysis of 50 WEF SITs articles, the key findings from the top five articles communicate an insightful message that resonates towards the importance of strategic data, information, intelligence, and innovation, for strategic intelligence. This means that entrepreneurship growth can be achieved through:

- Empowering education and learning – by reforming learning approaches for a VUCA world aided by AI agents and tools.
- Innovating in healthcare and social impact – by medical technologies that support intervention at an earlier stage.
- Mobilising resources for environmental sustainability – by transforming industries and urban development.
- Enhancing cultural heritage conservation and investing in creative industries – by prioritising AI skills to combat the phenomenon of AI worship.

Lastly, this study shows that information is a fundamental variable of complexity. Amid the complexity, AI provides opportunities for entrepreneurs to gather meaningful insights and benefit from functional information in the form of insights for entrepreneurial strategic decision-making. Entrepreneurs must be critical thinkers with an understanding of functional information, otherwise they may end up with egg on their face. Entrepreneurs must know that they can break an egg and scramble it, but they cannot unscramble it unless it is an artificial egg. Artificial eggs do not satisfy hungry customers' appetite for wholesome meals. What this means is that human entrepreneurs can see connections, flaws, challenges, threats, and opportunities where AI do not have the real-world insight.

In the years to come, the continuous development of AI, big data, blockchain, and robotics will further shape the entrepreneurial landscape. What the landscape will look like will be determined by the human ability of reasoning, problem-solving, creativity, memory, language and critical thinking. Critical thinking must not deteriorate. These skills form the foundation of the NRT methodology detailing the steps that are required to move from data to information and intelligence to ultimately arrive at strategic intelligence.

5. Conclusion

The objective of this research paper was to illuminate how entrepreneurial insights can be gained in the process from data into strategic intelligence, that can be used to drive the SDGs. The WEF SITs articles particularly on the SDG topic conveys that entrepreneurs can derive insights in the process from data into strategic intelligence. The content analysis of the Strategic Intelligence-Relevant articles narrate that entrepreneurs must be aware of, and embrace the strategic nature and use of data, information, and intelligence for strategic decision-making. This will in turn ensure entrepreneurs are Strategic Intelligence relevant in exploiting key strategic insights from data. Entrepreneurs should embrace the transformative power of AI to derive strategic insights from existing data instead of allowing AI to deteriorate their critical thinking ability. The findings from the WEF SITs articles illustrate that it is possible for entrepreneurs to access data for analysis into strategic insights. By following similar approaches to working with data, such as illustrated and narrated with the NRT methodology, entrepreneurs will be prepared to embrace the challenges and opportunities of the VUCA world to help in driving the SDGs.

Ethics Declaration

Ethical clearance was obtained from the University of Johannesburg's, College of Business and Economics (CBE) Research Ethics Committee. Ethics clearance for this research was approved on 31 October 2022. Reference number: 2020SCiiS58.

AI Declaration

The authors did not make use of any AI tool in producing this research paper.

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