

Modelling Future Sustainability Landscapes Through Predictive Analytics

Simon Phuluwa

Unisa, South Africa

humbulanisp@gmail.com

Abstract

In an era marked by multifaceted global affairs, sustainability has emerged as a central theme assuming a central role of paramount significance in addressing these issues. RFG Food Group, being one of the largest canned foods suppliers has been advocating for sustainability in response to imposed government regulations. Understanding the underlying drivers for sustainability is essential to develop a comprehensive sustainability strategy. The current sustainability theory lacks completeness, prompting the development of a solid theoretical framework guided by grounded theory. This article adopted a mixed method approach with a qualitative approach used in conjunction with grounded theory to investigate the literature (secondary data) on sustainability drivers to develop a solid theoretical framework, a quantitative approach to test the formulated theoretical framework through statistical analysis, and scenario planning to leverage the theoretical framework to develop future sustainability landscapes. Through theoretical sampling, Memo writing, and qualitative coding techniques, emergent themes were derived from data to develop a complete theoretical framework. The process of qualitative coding is iterative and occurs until saturation is achieved resulting in seven themes which are mainly; Collaboration and Alliances; Consumer; Preferences and Awareness; Economic factors; Government Regulations; Environmental drivers; Social responsibility and Ethics; and Employee and Organisational factors. Primary quantitative data was collected by surveying ten procurement managers at RFG Food Group to test the formulated theoretical framework which was leveraged through Dematel methodology to determine future sustainability landscapes.

Key Words

Grounded Theory, Dematel Methodology, Sustainability

1. Introduction and Background

Sustainability has become of paramount importance propelled by ecological decline, resource attrition, and social disparity. This study uses grounded theory to derive themes from data on sustainability to develop a concrete theoretical framework. South African companies have been striving to bridge the gap between sustainability and are facing regulatory pressure such as the extended producer responsibility to drive ecological awareness. This article examines obstacles to economic sustainability such as economic expansion and job opportunities, environmental sustainability such as green consumption and sustainable production, and social responsibility such as harmonious and integrated societies (Clark and Wu 2016). The lack of sustainability has been confirmed to be financially burdensome for corporations involved in exporting products to affluent nations with stringent sustainability restrictions. Advancement towards sustainability surpasses the compliance framework and extends towards adopting inventive solutions and aligning with cultural norms. This research article aims to forecast future sustainability landscapes by employing statistical analysis tools. The prerequisite for forecasting future sustainability landscapes is to determine the principal underlying drivers for sustainability. Corporations that incorporate big data into their business strategy have an increased sustainability practice (Dubey et al. 2019).

2. Literature Review

This section of the research paper delves into the literature on sustainability drivers to determine the existing theoretical framework. This research elicits information derived from preceding studies leading to a three-fold approach beginning with grounded theory aimed at deriving sustainability themes rooted in data, a deductive study aimed at rigorously testing the formulated sustainability theory, and scenario planning which leverages the formulated theoretical framework through Dematel technique to develop future sustainability landscapes. This section also aims to illuminate predictive analytics tools that can be leveraged to develop future sustainability landscapes.

2.1. Environmental Concerns and Ecological Imperatives

Ecological resource depletion, habitat destruction, and environmental degradation have had long-lasting negative effects on sustainability, which has captured the interest of various supply chain partners and governments (Danso et al. 2020). Global sustainability issues have led to the development of a regulatory framework by the government to enforce strict regulations on corporations. Human behaviour has been central to impacting the ecosystem through the unsustainable consumption of resources, and consumer purchasing patterns. The ecosystem decline was also propelled by the unprecedented population expansion (Nkosi 2014). These issues were also fuelled by the new COVID-19 virus, signaling the urgent need for sustainability (Hishan et al. 2021).

International Context and Sustainable Development Goals

An extensive undertaking from developing countries is required to catch up with their western counterparts in terms of sustainable development. The lack of sustainable development threatens the quantity and quality of life that drives a sense of urgency among corporations and government entities (Osbaldiston and Schott 2012). It was agreed between the 1950s and 1970s that the environment could no longer support economic expansion (Statistics South Africa 2018).

Social Responsibility and Ethical Considerations

Brand equity and regulatory pressure drive corporations to adopt corporate social responsibility (Wiedmann,2015). CSR is driven by the King Code of Governance, which requires corporations listed on the JSE to disclose their performance results. Corporations are redirecting their focus from driving CSR for their own benefit to driving CSR for collective societal welfare. There are four pillars of CSR, which are namely: Economic, ethical, legal, and charitable responsibilities.

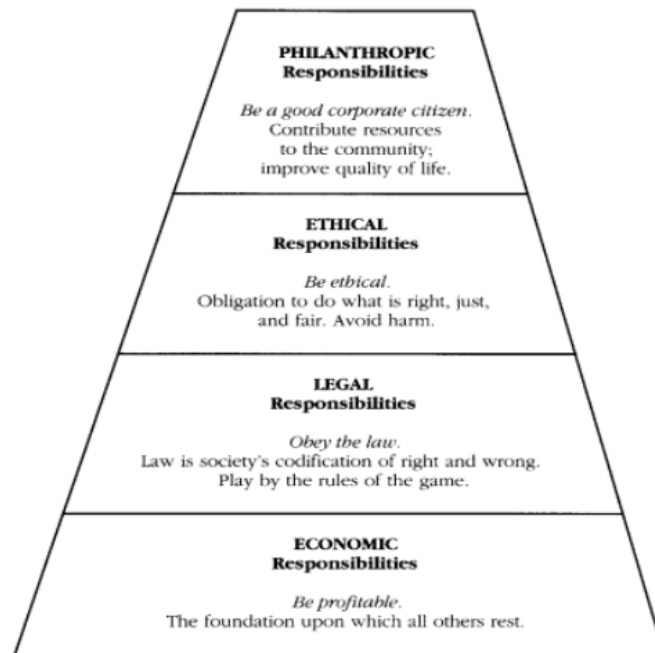


Figure 1. Pillars of CSR. (Ackers,2015)

Economic rationale and business imperatives

Economic sustainability refers to the ability of corporations to maintain their potential for survival and expansion while maintaining the interconnections of the subsystems (Ackers 2015). Economic sustainability has several drivers such as: Efficient use of resources, Innovation and technological advancement, diversification and resilience, social equity, environmental responsibility, and stakeholder engagement (Ackers 2015).

Policy Frameworks and Regulatory influences

Corporations are experiencing regulatory pressure to become sustainable. UN 2030 is one of the agenda's utilised in the international context to drive sustainability. UN2030 outlines 17 SDGs to be achieved by 2030 thereby ensuring continued sustainable development. The extended producer responsibility was implemented to drive sustainability by placing sustainable development obligations on the producer.

Triple Bottom Line Approach (TBL)

TBL elaborates on the role of executives in decision-making affecting the sustainability stance of corporations (Tjahjadi et. al.,2021). TBL suggests that the traits of top executives are central to driving sustainability. TBL is a comprehensive approach to sustainability research that focuses on creating long-term value for internal and external stakeholders. Corporations driving TBL achieve a competitive advantage (Markley and Davis, 2007).

Research Methodology

Research methodology is a structured and systematic approach to conducting research (Saunders and Lewis,2009). The research onion by Saunders and Lewis (2009) was used to develop a holistic research methodology.

Philosophical World View

Research philosophy is defined as a series of concepts and assumptions that underlie the dissemination of knowledge (Saunders and Lewis,2009). At each phase of the research process, a researcher must make assumptions underlying human knowledge (Epistemological assumptions), how one's perspective may impact the research approach (Axiological assumptions), and the circumstances that are encountered while conducting the research procedure (Burrell and Morgan,2017). Positivism and interpretivism research philosophies were employed in this study in that it is a mixed-methods study. A theory was established using qualitative data, which was subsequently validated using quantitative data.

Approach to theory development

There are two ways to theory creation, which are predominantly inductive and deductive (Ragab and Arisha,2018). As can be seen in Figure 2 below, deductive logic validates a specified theoretical framework, whereas induction logic constructs a theoretical framework that is rooted in data (Saunders and Lewis,2009). A deductive technique to theory building uses acquired facts to evaluate a hypothesis connected to the present theory. Data is collected in the deduction logic to create a theoretical foundation (Saunders and Lewis,2009). This study integrated deductive and inductive approaches. The Grounded Theory framework has been adopted to provide a complete theory about the elements that influence sustainability in food manufacturing. To establish its empirical validity, the proposed model was subjected to rigorous testing.

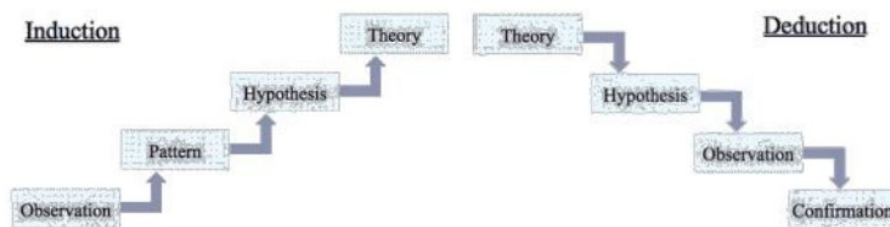


Figure 2. Induction vs Deduction. (Ragab and Arisha,2018)

Research Design

A research design is a roadmap for addressing the research inquiries that contain specific goals derived from the research questions (Saunders and Lewis 2009). The exploratory study was utilized in the inductive logic research design to get deeper insights into the fundamental elements affecting sustainability to identify and evaluate significant insights. The explanatory study was utilized for the Deductive Logic research approach, which sets out to identify the underlying causal relationships between sustainability determinants and sustainability.

Methodological Choices

The mixed methods approach was chosen as the methodological strategy for this study, integrating qualitative and quantitative methodologies for data collection and analysis. Grounded theory was used to collect qualitative data to formulate a theoretical framework rooted in data, and surveys were used to gauge the efficacy of the formulated theoretical framework.

Research strategies

A research strategy is a set of techniques that outline how the researcher intends to address research inquiries. Grounded theory strategy was employed for inductive Logic (Exploratory) whereby qualitative data was collected to identify themes within data to build a theory grounded in data. The survey research strategy was chosen for the deductive logic (Explanatory) whereby numerical data was collected through surveys to probe the formulated theoretical framework. The theory was then leveraged Through Dematel methodology to develop future sustainability landscapes.

Grounded Theory

Grounded theory is used to generate or develop a data-driven theoretical framework (Seidel and Urquhart ,2016). It is qualitative in character, allowing researchers to construct an explanation for an event or process based on the interaction of several participants (Seidel and Urquhart, 2016). Systematic procedures and constructivist approach are two approaches to grounded theory (Seidel and Urquhart, 2016) (Johnson,2014). A systematic approach was adopted for this study. The grounded theory process as illustrated in figure 3 was followed to develop sustainability drivers. Qualitative coding was utilised to code literature regarding sustainability to determine the underlying themes. Theoretical saturation was achieved by an iterative process of qualitative coding, memo writing, and continual analysis, with no new knowledge arising from data resulting in a complete theory.

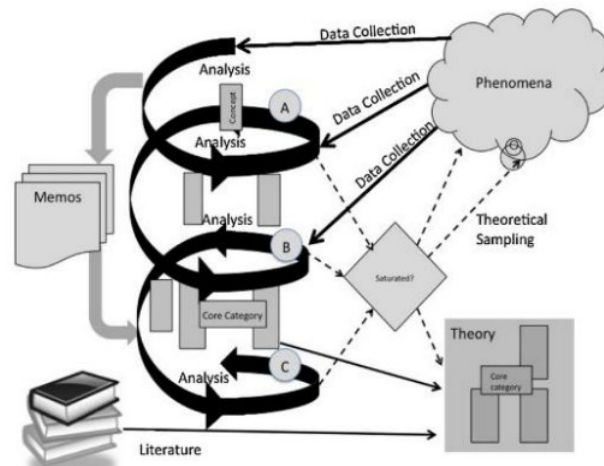


Figure 3. The Grounded Theory method. (Adolph et al. 2011)

Survey

A survey is a quantitative research approach that is frequently associated with deductive logic (Saunders and Lewis,2009). To determine the viability of the proposed theoretical framework (in GT theory), a survey was conducted to acquire primary quantitative data using a Likert scale questionnaire. Descriptive statistics were utilized to test the validity of the formulated theory and the interrelations between the drivers.

Time Horizon

A time Horizon can be either cross-sectional or longitudinal in nature (Saunders and Lewis,2009). Cross-sectional data collection occurs at a single moment in time, whereas longitudinal data collection occurs over a prolonged period (Saunders and Lewis 2009). A Longitudinal time Horizon was utilised for the inductive logic. It involves scouring literature from 2018 to 2022 for themes related to key sustainability factors. The deductive logic was carried out using a cross-sectional time, Horizon. It included gathering data through surveys at a certain period to evaluate the theoretical framework that had been developed.

Target Population

Sampling is the process of picking a selection of materials or persons from a larger population (Saunders and Lewis,2009). Because of practical limits such as time and resources, gathering and evaluating data from the whole population is impracticable, highlighting the need of sampling. Theoretical sampling was utilised for the inductive logic whereby literature was selected based on emergent themes. To collect data for the Quantitative (Deductive logic) component of the report, stratified random sampling was utilized. A survey was administered to ten procurement managers grouped into different strata. Because procurement managers have various roles and responsibilities, departments, and degrees of expertise, stratified sampling was the ideal method.

Techniques and Procedures

Data gathering offers a comprehensive picture of the study topic (Johnson and Turner,2003). Data collection refers to a set of interconnected actions that includes and extends beyond data collecting (Creswell and Poth, 2016).

Inductive Study Techniques and Procedures

The grounded theory approach was used to gather and analyse secondary literature data on sustainability drivers. Constant evaluation was employed throughout the data collecting and analysis procedure to compare themes and events and uncover patterns within the data. Simultaneous Data analysis and collection guarantees that the researcher's subsequent data-gathering technique is informed by the emerging analysis, promoting data control (Charmaz,2014). Theoretical sampling was used to identify new literature sources based on emergent concepts and patterns identified during the preceding data-collecting cycle.

Deductive Study Techniques and Procedures

Secondary data was collected from the sampled 10 procurement managers of RFG Food Group via a survey. Management's perspectives of sustainability drivers were assessed using a Likert scale and the questionnaire was designed to thoroughly examine the defined theoretical framework of ground theory using descriptive analytics. For data analysis, PSPP statistical analysis software was used.

Scenario Planning

Quantitative secondary data was collected by surveying the ten procurement managers at RFG Food Group. The Collected data was leverage through Dematel Methodology to develop multiple plausible future sustainability scenarios grounded in data.

Results Discussion, and Interpretation of Findings

Data Analysis for Exploratory Study/Inductive Logic

Grounded theory was utilised as a data analysis tool for the inductive logic. Qualitative coding such as open coding, axial coding, and selective coding was utilised to determine emergent themes within data. Grounded Theory employs three data collection techniques: open coding, axial coding, and selective coding (Creswell and Poth 2016). Open coding was used to create information categories that are linked by axial coding, as well as to construct a story that links the many categories, leading to the development of theory (Creswell and Poth 2016). Open coding was utilised to code literature line by line resulting in initial codes developed. Table 1 below shows the results of initial open coding.

Table 1. Open codes

Open Codes	Count of sources
Government and Regulations	73
Cost Savings	33
Customer Pressure	32
Green Incentives and Practices	22
Social Responsibility	19
Organizational culture	19
Competitive advantage	16
Collaboration with stakeholders	13
Employee development and training	13
Supplier engagement and compliance	12
Innovation	11
Consumer preference	11
Economic consideration	10
Waste minimization	10
Business Benefits	7
Financial performance	7
Climate change mitigation	6
Corporate social responsibility	6
Ethnics	6
Management	6
Compliance with the environment	6

Following open coding, one category was chosen as the focal phenomena of interest (Creswell and Poth, 2016). The codes created during open coding were examined during the Axial coding phase, and extra data was collected for deeper insights (Creswell and Poth, 2016). Axial coding identifies causal circumstances that impact the primary phenomena, and the data obtained during this phase is organized into a coding paradigm that represents a theoretical framework or model of the activity under research.

The table 2 below categorizes open codes after determining the central phenomena. The categories are Partnerships, Customers, Sustainable performance, Policies and subsidies, Environment, Ethics, and organization.

Table 2. Grounded theory Emergent themes

Categories	Codes
Partnerships	Inter-organisation collaboration (A), Intra-organisational collaboration (B), Experience sharing (C), Information Dissemination and gathering(D), Knowledge management (E), Cooperation (F), External support and influence (G), Government involvement (H), Supplier engagement (I), Innovation communities (J)
Customers	Consumer demand (K), Consumer demand (L), Consumer pressure (M), Green reputation and branding (N), Promotional strategies (O)
Sustainable performance	Cost savings (P), Financial performance (Q), Waste minimization (R).
Policies & Subsidies	Regulatory compliance (S), Sustainability Policies (T), Tax incentives (U), Tax Policies (V), Subsidy policies (W), Green Incentives (X)
Environment	Sustainable packaging (Y), Climate change mitigation (Z), recyclability (AA).
Ethics	Ethical choice (AB), Human Well-being (AC), Social Justice (AD), Corporate social responsibility (AE), Social Impacts (AF), Societal demands (AG).
Organization	Employee demands (AH), Size of organisation (AI), Operational performance (AJ), Management support (AK), Organisational flexibility (AL), Operational efficiencies (AM), Brand equity (AN), Employee training and development (AO), Competitive edge (AP), Corporate culture (AQ), Commitment to SDG's (AR), Business Capabilities (AS), Risk minimization (AT).

Propositions or hypotheses that link the categories specified in the coding paradigm are created on this step (Creswell and Poth, 2016). The hypothesis that serves as the foundation for theory building relates emergent themes obtained from coded data to the study's core issue. The central core categories were identified to relate them to other core categories. The end outcome is a theoretical framework that has been developed.

Table 3. Final sustainability drivers

Emergent themes	Codes
Collaboration and Alliances	(A), (B), (C), (D), (E), (F), (G), (H), (I), (J)
Consumer Preferences and Awareness	(K), (L), (M), (N), (O)
Economic factors	(P), (Q), (R).
Government Regulations	(S), (T), (U), (V), (W), (X)
Environmental drivers	(Y), (Z), (AA).
Social responsibility and Ethics	(AB), (AC), (AD), (AE), (AF), (AG).
Employee and Organizational factors	(AH), (AI), (AJ), (AK), (AL), (AM), (AN), (AO), (AP), (AQ), (AR), (AS), (AT)

A complete theoretical framework was developed from the coding process which represents a list of drivers and sub drivers for sustainability.



Figure 4. Sustainability drivers

Deductive Logic

Quantitative survey data was collected from the ten procurement managers regarding their perception on the sustainability drivers. Data was analysed using PSPP statistical software to rigorously test the formulated theoretical framework.

Validity and Reliability Tests

Cronbach’s alpha test was performed on the questionnaire results to test for reliability and validity. Cronbach’s alpha of 0.99 was obtained indicating high validity and reliability.

$$\text{Cronbach's Alpha} = \frac{NC}{V+(N-1)C} \tag{1}$$


```

RELIABILITY
/VARIABLES= ED SR EF CA EO CP GR
/MODEL=ALPHA.

Scale: ANY

Case Processing Summary



| Cases    | N  | Percent |
|----------|----|---------|
| Valid    | 10 | 100,0%  |
| Excluded | 0  | ,0%     |
| Total    | 10 | 100,0%  |



Reliability Statistics



| Cronbach's Alpha | N of Items |
|------------------|------------|
| ,99              | 7          |


```

Figure 5. Cronbach’s alpha

Descriptive analytics

Table 4. Descriptive statistics

```

DESCRIPTIVES
/VARIABLES= ED SR EF CA EO CP GR
/STATISTICS=DEFAULT RANGE SEMEAN VARIANCE KURTOSIS SKEWNESS.

Descriptive Statistics



|                      | N  | Mean | S.E. Mean | Std Dev | Variance | Kurtosis | S.E. Kurt | Skewness | S.E. Skew | Range | Minimum | Maximum |
|----------------------|----|------|-----------|---------|----------|----------|-----------|----------|-----------|-------|---------|---------|
| ED                   | 10 | 4,32 | ,14       | ,44     | ,19      | -1,50    | 1,33      | ,42      | ,69       | 1,20  | 3,80    | 5,00    |
| SR                   | 10 | 4,37 | ,14       | ,43     | ,19      | -1,53    | 1,33      | ,52      | ,69       | 1,10  | 3,90    | 5,00    |
| EF                   | 10 | 4,29 | ,12       | ,38     | ,15      | -,47     | 1,33      | ,86      | ,69       | 1,10  | 3,90    | 5,00    |
| CA                   | 10 | 4,38 | ,13       | ,40     | ,16      | -1,53    | 1,33      | ,44      | ,69       | 1,00  | 4,00    | 5,00    |
| EO                   | 10 | 4,27 | ,13       | ,41     | ,17      | -,91     | 1,33      | ,47      | ,69       | 1,20  | 3,80    | 5,00    |
| CP                   | 10 | 4,36 | ,11       | ,36     | ,13      | -,89     | 1,33      | ,60      | ,69       | 1,00  | 4,00    | 5,00    |
| GR                   | 10 | 4,72 | ,09       | ,28     | ,08      | -2,28    | 1,33      | -,11     | ,69       | ,60   | 4,40    | 5,00    |
| Valid N (listwise)   | 10 |      |           |         |          |          |           |          |           |       |         |         |
| Missing N (listwise) | 0  |      |           |         |          |          |           |          |           |       |         |         |


```

The Mean and Median are central tendency measurements (Peck et.al.,2008).

$$\text{Mean} = \frac{\text{Sum of all observations in the sample}}{\text{Number of observations in the sample}} \tag{2}$$

The mean and median are above 4 on a Likert scale of 1 – 5 indicating:

- Procurement managers are unequivocal on the importance of sustainability drivers.
- A favourable attitude toward sustainability.
- Procurement managers' shared knowledge or consensus

Quantifying variation in data is done using the standard deviation and variance. They are given by below equations:

Standard deviation:

$$s = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}} \tag{3}$$

Variance:

$$S^2 = \frac{\sum(x-\bar{x})^2}{n-1} \tag{4}$$

The standard deviation and variation for each sustainability driver are quite low, demonstrating that procurement managers are strongly aligned on the sustainability drivers. This also indicates that the data points form a compact cluster around the mean.

Table 5. Correlation analysis

		Correlations						
		ED	SR	EF	CA	EO	CP	GR
ED	Pearson Correlation	1,000	,987	,983	,985	,976	,976	,920
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000
	N	10	10	10	10	10	10	10
SR	Pearson Correlation	,987	1,000	,970	,976	,958	,972	,912
	Sig. (2-tailed)	,000		,000	,000	,000	,000	,000
	N	10	10	10	10	10	10	10
EF	Pearson Correlation	,983	,970	1,000	,975	,968	,985	,870
	Sig. (2-tailed)	,000	,000		,000	,000	,000	,001
	N	10	10	10	10	10	10	10
CA	Pearson Correlation	,985	,976	,975	1,000	,956	,991	,938
	Sig. (2-tailed)	,000	,000	,000		,000	,000	,000
	N	10	10	10	10	10	10	10
EO	Pearson Correlation	,976	,958	,968	,956	1,000	,959	,893
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,000
	N	10	10	10	10	10	10	10
CP	Pearson Correlation	,976	,972	,985	,991	,959	1,000	,918
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,000
	N	10	10	10	10	10	10	10
GR	Pearson Correlation	,920	,912	,870	,938	,893	,918	1,000
	Sig. (2-tailed)	,000	,000	,001	,000	,000	,000	
	N	10	10	10	10	10	10	10

Pearson's correlation was utilized to determine the strength and direction of the linear association (Peck et.al.,2008). A correlation value of 1 implies a significant relationship between the sustainability drivers. Pearson's correlation for all sustainability drivers varies from 0.870 to 0.991, showing a substantial correlation between the factors. By implication, a change in one driver can influence other drivers.

Table 6. Coefficient of determination

Model Summary (Sustainability)			
R	R Square	Adjusted R Square	Std. Error of the Estimate
,95	,91	,60	1,91

To examine the degree of variation in sustainability attributable to the sustainability drivers, the coefficient of determination was utilized. The coefficient of determination indicated that 91% of the variation in sustainability is attributable to the sustainability drivers.

Table 7. ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	75,18	7	10,74	2,93	,278
Residual	7,32	2	3,66		
Total	82,50	9			

This indicates a strong relationship between sustainability and sustainability drivers. The adjusted R squared of 60% and standard error of 1.91 indicates that the model is a good fit. The one-way analysis of variance findings revealed a p-value of 0.278, indicating that the model lacks statistical significance. This is owing to the tiny sample size of ten procurement managers.

4.3 Scenario planning

A questionnaire on the interrelationships between sustainability drivers was distributed to Ten procurement managers. The questionnaire was constructed using a Likert scale of 1-5, with 1 suggesting a weak association between the sustainability drivers and 5 indicating a strong inter-relationship. Dematel methodology was utilised to determine dependency and influences among the sustainability drivers. Dematel methodology process is depicted in figure 6.

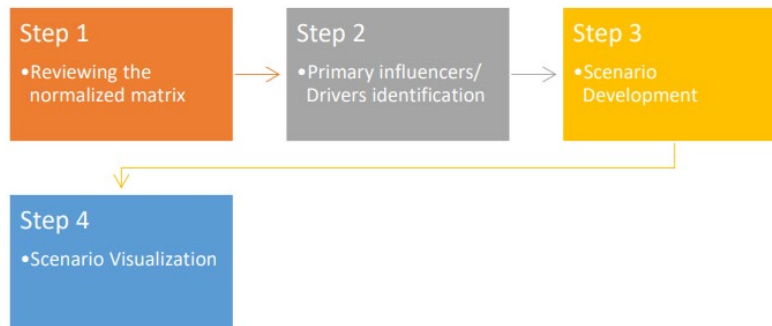


Figure 6. Dematel methodology

The normalized matrix of the Dematel technique shows that each driver for sustainability has the same degree of impact and reliance, suggesting a bidirectional link. This implies that modifications in one driver can influence the entire model.

Table 8. Normalized matrix

Sustainability Drivers	dependency	influences
Collaboration and Alliance	0,9	0,9
Consumer Preferences and Awareness	1,1	1,1
Economic Factors	0,8	0,8
Government Regulations	1,1	1,1
Environmental Drivers	1	1
Social Responsibility and Ethics	0,8	0,8
Employee and Organizational factors	1,2	1,2

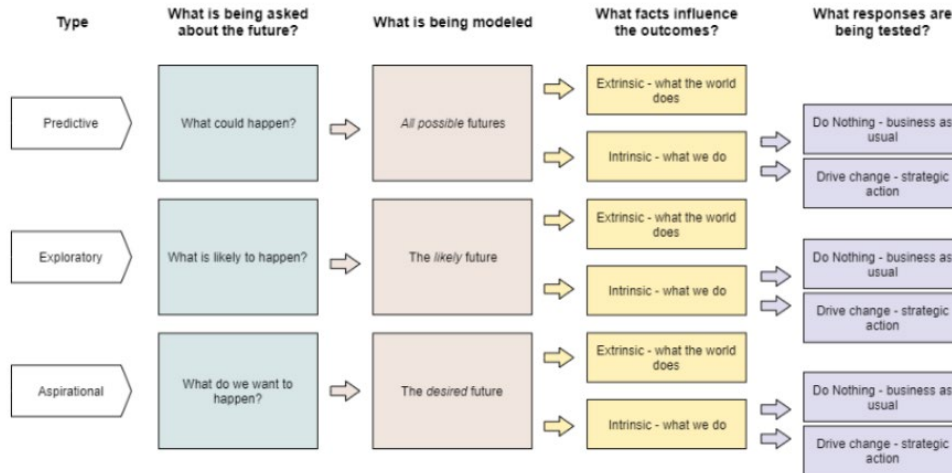


Figure 7. Flow-based scenario planning (Johnsson and Kramer,2023)

A flow-based scenario planning technique has been adopted, which takes a predictive perspective of what might take place, an exploratory view of the potential future, and an aspirational view of what the ideal future is. Below scenarios were developed using flow-based scenario planning

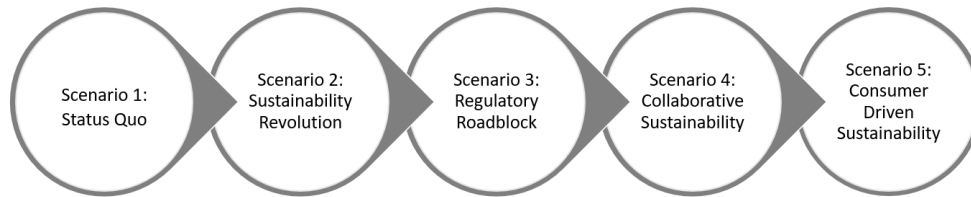


Figure 8. Future Plausible scenarios

Scenario 1 depicts the current state of sustainability. In this scenario, consumer sustainability awareness is still in its early stages, with the government regulatory system still in its early stages. International pressure, such as the UN2030 Agenda, is driving environmental sustainability. Collaboration between corporations and PROs promotes sustainable adoption. As environmental concerns gain primacy, less resources are directed toward social sustainability.

Scenario 2: Consumers are aware of the critical role of sustainability in this scenario, and their choices are matched with sustainable development. When consumers prioritise sustainable products, the number of sustainable firms grows exponentially. In response to these challenges, governments promote sustainability through legislation and regulations, and climate change to promote corporate sustainability. Businesses that devote themselves to sustainability succeed, while those who do not struggle to stay up.

Scenario 3: depicts a future situation in which economic pressure takes precedence over sustainability as the government concentrates on economic recovery. Sustainable items grow more expensive to create, limiting market possibilities. Government rules become an impediment to going green, exacerbating unsustainable development.

Scenario 4: In this scenario, sustainability emerges because of a joint effort between organizations and the government. Sustainability expenditures drive economic growth, and corporate growth is fuelled by inter-company collaboration and alliance. Consumers having a broad spectrum of sustainable product choices help to expedite sustainability initiatives.

Scenario 5: Consumer needs are critical when it comes to fostering sustainability in this context. With the government's eased rules, customer preferences drive demand for green products, which motivates firms to expand their sustainable offers on the market. This results in an exponential increase in the number of enterprises concentrating on green products. Consumer preferences drive economic decisions, and corporations adjust to match these preferences.

Conclusion and Recommendations

The world is going through sustainability challenges such that more attention was directed towards sustainable transformation. An In-depth review of grounded theory was conducted to delve into the emerging themes influencing sustainability. Through Qualitative coding, memo writing and theoretical saturation, 7 drivers for sustainability were developed.

Sustainability drivers were tested to verify the formulated theoretical framework and to determine the interrelationships between the drivers. The Sustainability drivers were verified through statistically analysis and leveraged through Dematel methodology to determine future sustainability landscapes. Seven sustainability landscapes were developed using a flow-based scenario planning technique.

Recommendations

A survey of 10 procurement managers was conducted for RFG Food Group. To obtain a more accurate result, it is advised that the study be undertaken by choosing procurement specialists from a varied variety of sectors in South Africa to ensure a representative population. It is also advised to utilize a larger sample size to gain statistical significance in the data. Causal loops can be investigated to Identify the causal links between the various drivers. It is also recommended to investigate the Triple-bottom-Line theory to obtain insights into organizational performance based on the three pillars of sustainability and to gauge the effectiveness of Senior management's decisions in fostering sustainability.

References

- Clark, H. and Wu, H. The sustainable development goals: 17 goals to transform our world. Furthering the work of the United Nations, pp.36-54. 2016.
- Dubey, R., Gunasekaran, A., Childe, S.J., Papadopoulos, T., Luo, Z., Wamba, S.F. and Roubaud, D., Can big data and predictive analytics improve social and environmental sustainability? *Technological Forecasting and Social Change*, 144, pp.534-545, 2019
- Danso, A., Adomako, S., Lartey, T., Amankwah-Amoah, J. and Owusu-Yirenkyi, D., Stakeholder integration, environmental sustainability orientation and financial performance. *Journal of business research*, 119, pp.652-662, 2020.
- Nkosi L. F., "An evaluation of the municipal solid waste management system within City of Tshwane Metropolitan Municipality, in Mamelodi East Township, Gauteng province South Africa," *Res. Policy*, vol. 9, no. 2, pp. 155–162, 2014, [Online]. Available: <http://dx.doi.org/10.1016/j.respol.2011.09.003> <https://doi.org/10.1016/j.worlddev.2020.104995> <http://dx.doi.org/10.1016/j.worlddev.2009.12.011> <http://publicaciones.eafit.edu.co/index.php/ecos-economia/article/view/1969/1978> <https://doi.org/10.1016>
- Hishan, S.S., Qureshi, M.I., Khan, N., Ramakrishnan, S., Jaiprakash, H. and Vaicondam, Y., 2021. Impact of COVID-19 pandemic on sustainable development goals: What we learn from the past and where we are heading?. *Studies of Applied Economics*, 39(3), 2021.
- Osbaldiston R. and J. P. Schott, "Environmental sustainability and behavioral science: Meta-analysis of PR environmental behavior experiments," *Environ. Behav.*, vol. 44, no. 2, pp. 257–299, 2012, doi: 10.1177/0013916511402673.
- Statistics South Africa, GHS series. Volume IX, Environment, in-depth analysis of the General Household Survey 2002-2016, vol. IX. 2018. [Online]. Available: <https://www.statssa.gov.za/publications/Report03-18-08/Report03-18-082016.pdf>
- Wiedmann T. O., "The material footprint of nations," *Proc. Natl. Acad. Sci. U. S. A.*, vol. 112, no. 20, 2015, doi: 10.1073/pnas.1220362110.
- Ackers, B., 2015. Ethical considerations of corporate social responsibility-A South African perspective. *South African Journal of Business Management*, 46(1), pp.11-21. Carroll A. B., "The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders," *Bus. Horiz.*, vol. 34, no. 4, pp. 39–48, 1991, doi: 10.1016/0007-6813(91)90005-G.
- Tjahjadi B., N. Soewarno, and F. Mustikaningtiyas, "Good corporate governance and corporate sustainability performance in Indonesia: A triple 94 bottom line approach," *Heliyon*, vol. 7, no. 3, p. e06453, 2021, doi: 10.1016/j.heliyon.2021.e06453.
- Markley, M.J. and Davis, L., Exploring future competitive advantage through sustainable supply chains. *International Journal of Physical Distribution & Logistics Management*, 37(9), pp.763-774. 2007

- Saunders M., Lewis P., Thornhill, *Research Methods for Business Students*, vol. 5th. 2009.
- Burrell G. and G. Morgan, "Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life," *Sociol. Paradig. Organ. Anal. Elem. Sociol. Corp. Life*, pp. 1–432, 2017, doi: 10.4324/9781315242804.
- Ragab M. A. F. and A. Arisha, "ARROW @ TU Dublin Research Methodology in Business: A Starter 's Guide Research Methodology in Business : A Starter's Guide," *Manag. Organ. Stud.*, vol. 5, no. 1, 2018.
- Seidel S. and C. Urquhart, "On emergence and forcing in information systems grounded theory studies: The case of strauss and corbin," in *Enacting Research Methods in Information Systems: Volume 1*, 2016. doi: 10.1007/978-3-319-29266-3_8.
- Johnson L., "Adapting and combining constructivist grounded theory and discourse analysis: A practical guide for research," *Int. J. Mult. Res. Approaches*, vol. 8, no. 1, 2014, doi: 10.5172/mra.2014.8.1.100.
- Adolph S., W. Hall, and P. Kruchten, "Using grounded theory to study the experience of software development," *Empir. Softw. Eng.*, vol. 16, no. 4, 2011, doi: 10.1007/s10664-010-9152-6.
- Johnson B. and L. A. Turner, "Data Collection Strategies in Mixed Methods Research," *Handbook of Mixed Methods in Social & Behavioral Research*. 2003.
- Creswell, J.W. and Poth, C.N., 2016. *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications. /Second Edition-QUALITATIVE-INQUIRY-RESEARCHDESIGN-Choosing-Among
- Charmaz, K., *Constructing grounded theory*. sage. 2014
- Peck R., C. Olsen, and J. Devore, *Introduction to statistics & Data Analysis*, no. 1. 2008. Visual paradigm, "What is Scenario planning," 2023. [Online]. Available: [Online]. Available: What is Scenario Planning? Templates and Examples (visual-paradigm.com)
- Johnsson, F. and Kramer, R., *How macro factors influence decision-making in the fashion industry value chain*. 2023.