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“Management control Systems and sustainability: A structured literature review”

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Firma dello documento



Mansoureh Shirinmazair

Abstract

The aim of this thesis is to examine the integration of management control systems (MCS) with sustainability practices, with deep analysis of their relationship. In the current corporate businesses, organizations are trying to balance financial success with environmental and social responsibilities. This study has a great emphasis on how MCS can effectively integrate with sustainability statistics to achieve this balance between the two. Main components include the betterment in the field by the development of various factors that include environmental, social, and economic impacts, strategies for managing environmental and regulatory risks, and the alignment of incentive structures to promote sustainable behaviors throughout the organization.

The study gives the introduction of the topic to emphasize on the need of studying this issue. It gives an overview about what we are dealing with and the objective of the study which is to map review of the integration of MCS and sustainability. Literature review and theoretical frameworks include Levers of Control and Balanced scorecards are used to establish the grounds of the problems with which we dealt in this study. Research methodology is to collect data from various studies regarding the role of sustainability in business processes. The data then used to find the trends, analysis, dimensions and limitations.

The conclusion of the study lies in the findings of the study which discuss various tools and systems which can be employed or innovated to integrate sustainability with organizational strategies. The contribution of this study can provide the basis for the future researchers to provide innovative ideas to maintain sustainability in business practices.

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List of Acronyms

Management Control Systems	MCS
Sustainable development Goals	SDGs
Sustainability Control Systems	SCS
Triple Bottom Line	TBL
Key Performance Indicators	KPIs
Institutional Pressure for Sustainability	IPS
External Environment Reporting	EER
Internal Strategies, Processes and Activities	ISPA
Carbon Emissions Management And Reporting Scheme	CEMARS
Environmental Management Control System	EMCS
Balanced Scorecard	BSC
Levers of Control	LOC
Corporate Social Responsibility	CSR
Sustainability Reporting	SR
Systematic Literature Review	SLR
Chartered Association of Business Schools	CABS
Web of Science	WOS
Institutional Pressure in sustainability practice	IPS
Sustainability Management Control Tools	SMCTs
Integrated Reporting	IR
Management Accounting and Control Systems	MACS
Small to Medium-sized Enterprises	SMEs
GreenHouse Gas	GHG
Management Accounting Control	MAC

1

Introduction

In the present environment of global businesses, organizations are going through immense pressure to integrate sustainability into their systems while achieving the profit goals.

Integrating management control systems (MCS) with sustainability practices is important for keeping a balance between profitability and combating the global issues. The framework provided by MCS helps organizations to monitor and enhance their performance across financial, environmental, and social aspects.

The issues of sustainability and how to implement sustainable development are arguably the greatest challenges facing society and organizations today [1]. The challenges for sustainability in businesses can be analyzed by different studies and researches. Sustainability involves organizational strategic renewal as well as the creation of new calculative practices which drive, for example, the development of carbon trading markets and sustainability accounting and reporting [2].

A study spans a 15-year period during which MECH, a multi-national industrial firm headquartered in Sweden, developed and implemented an integrated sustainability strategy. MECH's belief system explicitly integrates economic and sustainability concerns [3]. In 2016, Natura analyzed its global contribution to the 17 SDGs. In its 2020 annual report, Natura shows the link between sustainability and the Natura business model, highlighting 2050 Vision Positive Impact, Natura & Co 2030 Vision—Commitment to Life and Natura 2030 Vision. In its 2020 annual report, Natura shows the link between sustainability and the Natura business model, highlighting 2050 Vision Positive Impact, Natura & Co 2030 Vision—Commitment to Life and Natura 2030 Vision [4]. These studies show how MCS can have a positive impact on a company's growth by using tools to monitor and improve its performance across various dimensions including sustainability.

1.1 Background

The integration of management control systems (MCS) and sustainability has become a critical issue in recent years, driven by the growing recognition of the importance of sustainable development and the need for organizations to adopt environmentally and socially responsible practices [5]. The increasing awareness of the impact of human activities on the environment has led to a shift in the way organizations operate, with a growing focus on sustainability and environmental management [6]. For this, it is very important that the control systems that are being implemented in the present time should focus on the needs of the modern time for the purpose of sustainability, responsible business practices and long term success. The following figure outlines key concepts for comprehending sustainability in businesses.



Figure 1: Sustainable Business Model

Overall, these current developments are shifting towards more integrated and proactive approaches to handling sustainability within MCS, aiming not just for compliance but also for long-term resilience in a rapidly changing global environment.

1.2 Research Problems

Despite more recent developments in hybrid and non-financial measurement systems and research indicating that financial and non-financial information can be considered equally important for both strategy deployment and development, these traditional MCSs are seen to be limited in incorporating the interests of a broad range of stakeholders other than shareholders and in addressing environmental and social issues as well as their inter-relationships with financial issues [2]. This is the limitation of the traditional management control system that it cannot cope with the modern problems. The paradox in expanding MCS is that demand for sustainability performance measures will likely result in overload for both information preparers and information users[1]. This information overload complicates decision-making activities and may weaken the potential of sustainability initiatives within organizations. Without strong performance indicators in this area, companies struggle to implement meaningful energy-saving strategies and demonstrate progress towards sustainability targets.



Figure 2: Goals of MCS

The management of the various resources can be controlled by an effective system. However, the measurement and management of energy consumption and energy efficiency, respectively, involves several complexities which impede the effective use of management control systems

to influence the motivation and ability of employees to work toward the aims of sustainable development[8]. These challenges include cost efficient measurement, diverse policy frameworks across different countries, and the need for specialized expertise in energy management within organizations.

Cost and issues of measurement of social and environmental aspects were the biggest difficulties encountered by companies in implementing and managing[9]. These challenges underscore the need for enhanced methodologies and tools that can effectively capture, analyze, and report on non-financial metrics within MCS.

Therefore, while MCS remains integral to managing business performance, addressing their limitations in accommodating diverse stakeholder interests, managing information overload, and driving genuine sustainability transformations is extremely important. Since firms must invest both human and monetary resources to integrate SCS into MCS, an important question is whether this type of investment results in improved performance[15]. Future research and organizational practices must prioritize developing comprehensive MCS frameworks that effectively support sustainable development goals while balancing economic imperatives and stakeholder expectations.

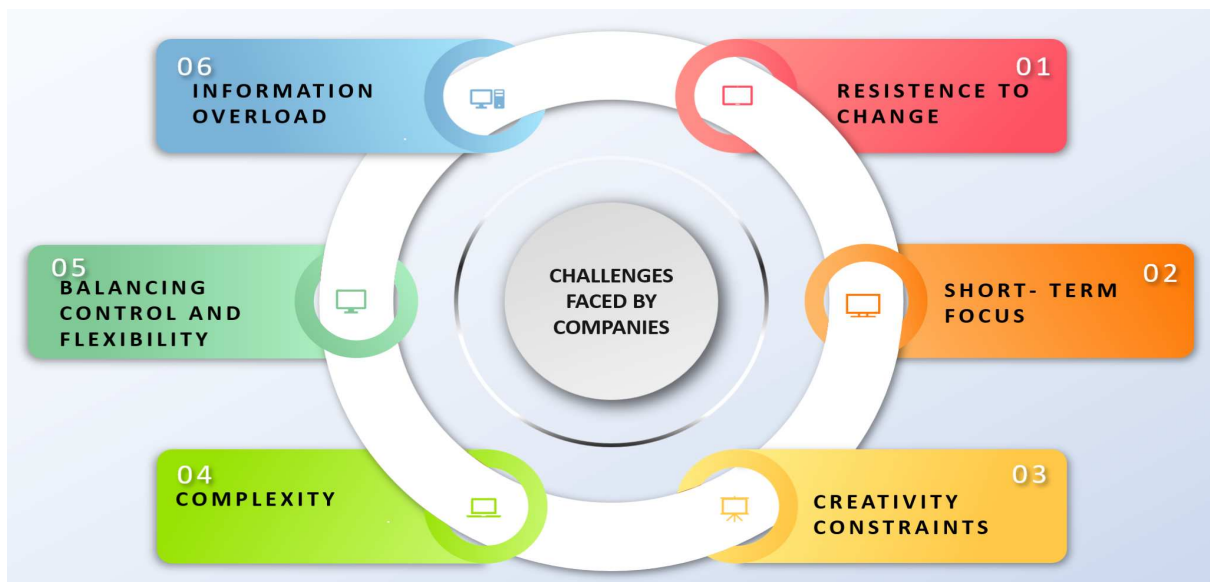


Figure 3: Challenges faced by companies in implementing MCS

1.3 Research Questions

The primary research question guiding this thesis is: How are management control systems utilized to manage and enhance sustainability in organizations?

Additionally, this study also answers the following questions:

1. What trends exist in publications related to Integration of MCS with sustainability?
2. Did the previous studies focus more on social or environmental aspects of sustainability?
3. What management control system tools were analyzed in the previous publications?
4. What are the aggregated results of the studies?

1.4 Objectives Of The Study

1. To Study and examine the Trends in Research Publications based on MCS and Sustainability

This objective of the study deals with data that is collected on the increase in research interest and the publications in the field of management control systems (MCS) and sustainability. By identifying and analyzing the findings of publications over time, the study seeks to understand how the acceptance of integrating MCS with sustainability has evolved with change in time.

2. To Classify the Research Methodologies Used in These Studies

The second objective focuses on the arrangement of different research methodologies present in the literature. This involves distinguishing between qualitative methods (like case studies and interviews) and quantitative methods (such as surveys and statistical analyses).

Understanding point of view of the methodologies helps in achieving the depth and diversity of the research in this field.

3. To Categorize the Various MCS Tools used in the relation with Sustainability

The objective of the study is to create a comprehensive record of the management control systems tools that are used to integrate sustainability practices into business practices. The

study provides insight into the various tools and systems that are used by companies to align their operations with sustainability goals.

4. To Differentiate Between the Social and Environmental Dimensions Addressed by These Tools

The fourth objective helps to distinguish between the implementation of MCS tools to address various aspects of sustainability, specifically the social and environmental dimensions. This involves analyzing how these tools are used to overcome issues like labor practices, community engagement, carbon footprint reduction, and resource management, and so it highlights the specific areas of impact within the broader sustainability agenda.

5. To obtain the Aggregated Findings from the Literature to Provide a Comprehensive Understanding of the Field

The final objective is to collect and analyze all the results obtained from the literature into an overview. This synthesis involves summarizing key insights, identifying common themes and patterns, and highlighting the overall impact of integrating MCS with sustainability on organizational performance and strategy. The aim is to provide a deep and easy understanding of the present knowledge in this field, offering valuable insights for researchers, practitioners, and policymakers.

1.5 Structure Of The Thesis

This thesis is divided into five chapters, including this introduction chapter. The following chapters are structured as follows:

Chapter 2: Literature Review and Theoretical Framework : In this chapter, we start by introducing management control systems (MCS) and then conduct a thorough review of existing literature on the integration of MCS into sustainability to achieve business goals. The study gathers the current understanding in this field and identifies research gaps that our study aims to fill. The theoretical framework section will explore relevant theories.

Chapter 3: Methodology: This chapter describes the research design and methodology used in this study. It outlines the research approach, data collection methods, and data analysis

techniques used to investigate the role of management control systems in shaping an organization's sustainability strategy and practices.

Chapter 4: Results: This chapter provides the analysis of Management Control System tools, both quantitatively and qualitatively. The social and environmental dimensions, the aggregated and interpretation of results from the study is also included. Additionally, we will compare our study with Previous Researches for better insight about the findings.

Chapter 5: Conclusion: This chapter summarizes findings of the study and discusses their implications for practice and future research. It concludes by highlighting the contributions of this study to the literature on management control systems and sustainability.

Literature Review and Theoretical Framework

2.1 Definition Of Management Control System (MCS)

Management Control Systems (MCS) refer to the processes and systems used by organizations to collect, analyze, and report information to support decision-making and achieve organizational goals. MCS includes a range of tools and techniques, such as budgeting, forecasting, performance measurement, and variance analysis, that help organizations to plan, organize, and control their activities [1]. For example, a study by Adams and Frost [14] found that MCS can facilitate the integration of sustainability reporting into management practices, and improve organizational sustainability performance.

The Management Control System

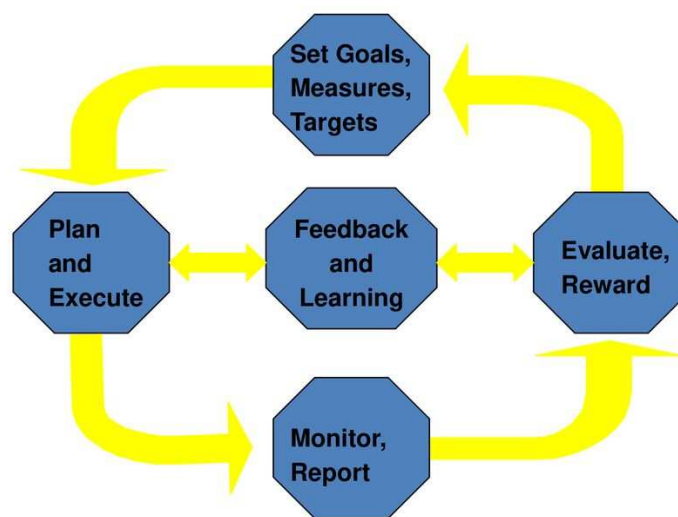


Figure 4: Management Control System

MCS can be categorized into four levers of control: belief systems, boundary systems, diagnostic control systems, and interactive control systems, each serving different purposes in guiding managerial actions and organizational behavior [42].

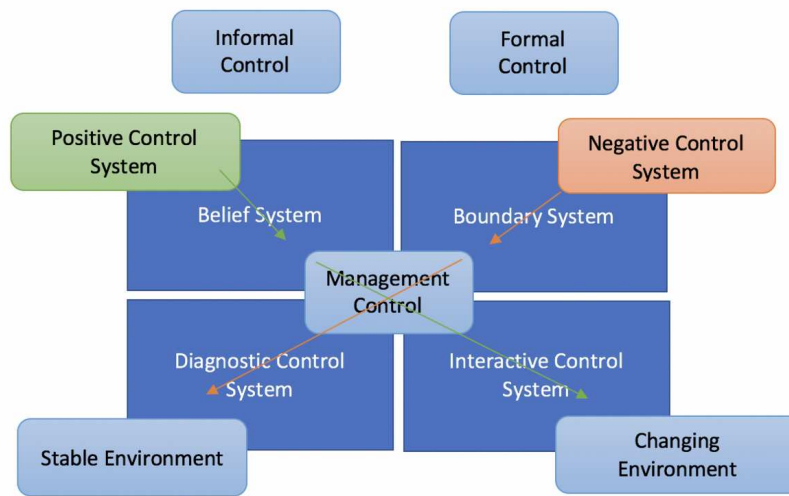


Figure 5: Categorization of MCS

2.2 Overview Of Sustainability And Climate Change In Business

The risk of extreme weather events, such as heat waves, wildfires, droughts, flooding, and severe storms, is projected to increase over the next century, as the global mean temperature continues to rise by as much as 4°C over the next century (IPCC 2007, 2014, 2019; 2021). According to the latest assessment, if greenhouse gas (GHG) emissions remain on the current growth path, global warming is projected to reach 4-6°C by 2100—an unprecedented shift with greater probability of larger and irreversible environmental changes unseen in millions of years that threaten devastation in swathes of the natural world and render many areas unlivable. Although 189 countries have committed to reduce carbon dioxide (CO₂) emissions by 30 percent in 15 years until 2030, global CO₂ emissions continued to increase since the 2015 Climate Accord by 2.3 percent to 36.3 billion metric tons in 2021—the highest level in history.[43]

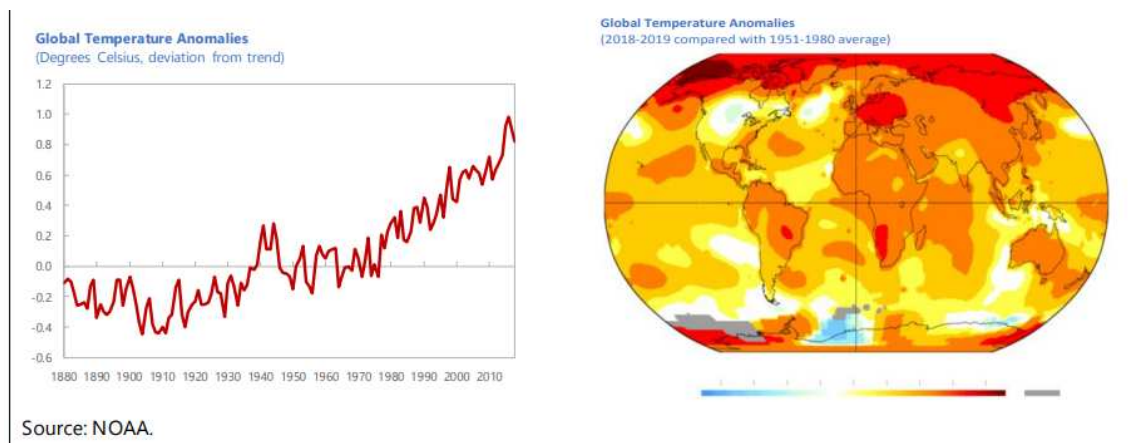


Figure 6: Global Climate Change trends

Sustainability in business means implementing various practices that ensure long-term financial security while simultaneously addressing environmental and social concerns. This mixed approach aims to create value not only for shareholders but also for a broader range of stakeholders, including employees, customers, communities, and the environment. The concept of sustainability gained prominence with the introduction of the Triple Bottom Line (TBL) by Elkington [15], which advocates for the measurement of organizational success across three dimensions: economic, social, and environmental performance. This point of view of the study has become increasingly relevant as businesses recognize the connection of these dimensions and their collective impact on long-term success and resilience of businesses.

Climate change represents one of the most pressing challenges for achieving sustainability. Human activities, particularly the burning of fossil fuels and deforestation, are driving significant changes in the Earth's climate, leading to severe weather events, rising sea levels, and disruptions in natural and economic systems. Businesses are not only contributors to climate change but also face substantial risks from its impacts, including supply chain disruptions, regulatory changes, and shifts in consumer preferences.

The importance of addressing sustainability and climate change in business cannot be overstated. Organizations have a significant impact on the environment through their operations, supply chains, and products [17]. According to the European Commission, businesses are responsible for approximately 70% of greenhouse gas emissions [19]. As such, businesses have a critical role to play in reducing emissions and mitigating the effects of climate change.

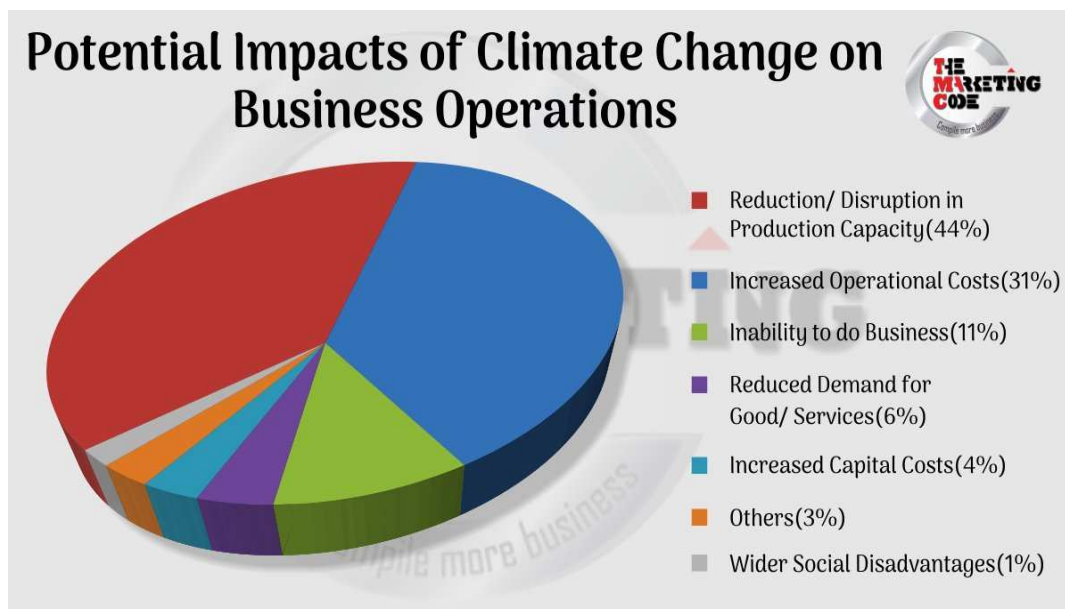


Figure 7: Impacts of Climate Change on Business Operations

Research has shown that having a proactive environmental strategy can have a positive impact on the long-term profitability of a company in terms of its relationship with various stakeholder groups and the resultant increase in the value of its brand [10]. For example, a review by Ghosh, Herzig and Mangena[20] adopts the view that corporate sustainability refers to strategies and practices that address the environmental and social aspects of performance, that may create shared value over the short term and long term ensuring business continuity. This ensures that adopting sustainable measurements in a company can give them an edge in competitive advantage, market expansion, Innovation and efficiency and at last safeguards brand reputation by mitigating scandals or negative publicity .

By incorporating sustainability metrics into these control systems, organizations can ensure that sustainability considerations are systematically addressed and integrated into everyday business practices. Henri and Journeault discuss the impact of MCS on environmental and economic performance, highlighting their role in promoting sustainable practices within organizations[15]. Governments worldwide are doing their best efforts to implement environmental regulations and carbon pricing mechanisms in a stricter way to mitigate climate change impacts. By proactively adopting sustainable practices, companies can attract environmentally conscious consumers, and achieve operational efficiencies.

An overview of management studies was done by Hartmann, Perego and Young [23] that have addressed the antecedents and consequences of carbon accounting, and provided some insight into the accounting issues that pertain to control and performance measurement. For the overview, they proposed that the literature can be broadly divided into three classes of studies.

The following figure broadly summarizes the main features of each stream.

CLASSIFICATION OF EXTANT CARBON ACCOUNTING LITERATURE

	Research streams		
	1. Carbon regulation	2. Carbon disclosure	3. Carbon management
<i>Accounting focus</i>	<ul style="list-style-type: none"> Financial accounting Auditing 	<ul style="list-style-type: none"> Financial accounting 	<ul style="list-style-type: none"> Cost accounting/ Management accounting
<i>Level of analysis/Point of view</i>	Macro-level: <ul style="list-style-type: none"> Country Market (GHG regulatory regime) Standard-setter 	Meso-level: <ul style="list-style-type: none"> Firm Shareholders Analysts 	Micro-level: <ul style="list-style-type: none"> Units in firm Individual decision-makers Management accountants
<i>Theoretical paradigms</i>	<ul style="list-style-type: none"> Political theory (of accounting regulation) Institutional theory Stakeholder theory 	<ul style="list-style-type: none"> Voluntary and mandatory disclosure Capital markets (agency theory) 	<ul style="list-style-type: none"> (Absent)
<i>Research approach</i>	<ul style="list-style-type: none"> Normative Positive Interpretive 	<ul style="list-style-type: none"> Positive Interpretive 	<ul style="list-style-type: none"> Descriptive (empirical evidence gathered mainly as surveys of practice) Interpretive
<i>Control and performance measurement issue</i>	<ul style="list-style-type: none"> Carbon accounting as ‘extreme nonfinancial’ performance measure Carbon accounting as search for new regulation and global standardization 	<ul style="list-style-type: none"> Carbon accounting as ‘extreme voluntary disclosure’ 	<ul style="list-style-type: none"> Carbon accounting as search for new metrics and roles

Figure 8: Classification of Extant Carbon Accounting Literature

1. CARBON REGULATION

This concept perfectly aligns with the concept of ‘civil regulations’ that encourages the businesses to adhere to environmental and social regulations. This approach not only fosters responsible corporate behavior but also promotes sustainable practices.[23]

2. CARBON DISCLOSURE

Also known as Greenhouse Gas (GHG) Accounting, involves measuring and monitoring the emissions particularly by businesses as they hold the biggest share in the GHG emissions. Specific accounting related research questions are still controversial like GHG emissions disclosures should be mandated rather than remaining a firm’s voluntary choice. Their study revealed that carbon disclosure statistics will remain incomplete, inconsistent and inaccurate.[23]

3. CARBON MANAGEMENT

This concept relates more to the internal driving factors of Carbon Accounting and how organizations adapt their MAC systems to address the issues of carbon emissions. Researchers have gone through the impact of carbon information on organizations, supply chain management and marketing.[23]

The study highlighted the impact of carbon accounting on businesses and firms particularly but the question still lies in the credibility, accuracy and the possibility of carbon accounting being an additional complexity to achieve sustainability.

Measurement Issues

1. The Pollution variants can change with the update in production processes. Therefore, the metrics which can be adaptive with the changes is required.
2. Technological or improper auditing can decrease the reliability of “GHG measures”.
3. The expenses, legal requirements, lack of knowledge about the environmental risk by the employees and stakeholders’ expectation can be problematic.

The figure below states the challenges for management control and performance measurement.

	Issue/Research question	Theory	Empirics
1. <i>Measurement issues</i>	<ul style="list-style-type: none"> • Regulation • Standardization • Costing externalities • Information content of nonfinancial information 	<ul style="list-style-type: none"> • Contingency theory • Agency theory • Interpretive theories • Actor-network theory • Institutional theory 	<ul style="list-style-type: none"> • Field, case and survey evidence
2. <i>Contracting and incentives</i>	<ul style="list-style-type: none"> • Carbon accounting-related performance measures 	<ul style="list-style-type: none"> • Agency theory • Transaction cost economics • Interpretive theories 	<ul style="list-style-type: none"> • Field and survey evidence
3. <i>Behavioural effects</i>	<ul style="list-style-type: none"> • Carbon accounting effects on managerial choice and risk-taking 	<ul style="list-style-type: none"> • Cognitive theories in judgement and decision-making • Prospect and inter-temporal choice theories • Behavioural finance theory • Actor-network theory 	<ul style="list-style-type: none"> • Field and case evidence • Experimental
4. <i>Measurement and control of the supply chain</i>	<ul style="list-style-type: none"> • Carbon accounting as means to optimize value chain 	<ul style="list-style-type: none"> • Economics • Organizational theories of inter-organizational relationships • Stakeholder and legitimacy theory 	<ul style="list-style-type: none"> • Field, case and survey evidence
5. <i>Role of management accountant</i>	<ul style="list-style-type: none"> • Carbon accounting as part of management accounting portfolio 	<ul style="list-style-type: none"> • Role theory • Social psychology 	<ul style="list-style-type: none"> • Field, case and survey evidence
6. <i>Carbon accounting information systems (CAIS)</i>	<ul style="list-style-type: none"> • Design characteristics of CAIS 	<ul style="list-style-type: none"> • Theory of planned behaviour • AIS theories • Contingency-based theory 	<ul style="list-style-type: none"> • Field, case and survey evidence • Experimental

Figure 9: Carbon Accounting Research Challenges

2.3 Integration of MCS With Sustainability

Traditional MCS are limited in addressing environmental and social issues, and therefore, sustainability control systems (SCSs) have emerged to support organizational sustainability objectives [2]. The configuration of a company's MCS and SCS should support the

implementation of a sustainability strategy that seamlessly integrates both financial performance and sustainability concerns [37].



Figure 10: Integrated Sustainability Management Systems

Research has shown that the integration of MCS and sustainability requires a fundamental transformation of the organization's management control systems [4]. This involves the development of new management accounting tools and techniques that can connect organizational strategy with operations and provide information, direction, and motivation to employees to continually develop sustainable practices and procedures [5]. For example, a study by Dutta et al. [10] found that the integration of MCS and sustainability requires a conceptual foundation that can support the development of management accounting information to support sustainability strategies.

The integration of MCS and sustainability also requires the development of new performance measurement systems that can capture the complex relationships between financial, environmental, and social performance [20]. This involves the development of new key performance indicators (KPIs) that can measure sustainability performance and provide insights for decision-making [22]. For example, a study by Beusch et al. [3] found that the

integration of MCS and sustainability requires the development of new KPIs that can measure sustainability performance and provide insights for decision-making.

The integration of MCS and sustainability requires a fundamental transformation of the organization's management control systems, the development of new management accounting tools and techniques, and the integration of sustainability concerns into performance measurement systems [10].

2.4 Previous Researches On MCS And Sustainability

Over the past decade, the researchers showed keen interest to find sustainability in business practices through management control. Recent studies, which mainly focus on large firms, have shown the role of management control in sustainability strategies. A study that presented the core value of the management control system, proved how it helps in organizational sustainability although these core values focus less on sustainability goals and more on the traditional goals of profit seeking.

The integration of sustainability with MCS was found to be difficult and so by considering all four levers of Simon (1994,1995), some results were obtained which includes- Firstly, the conversation among the management performing different organizational functions to discuss technical and organizational integration. Then, the strategies were implemented focusing on market sustainability. Lastly, the communication system among managers was improvised. It is observed that the stakeholders' primary focus is profit earning and so they require marketing data. In this case, all the focus cannot be on sustainability goals and the presence of information which includes social and environmental data makes it complex. It was suggested that both financial and non-financial goals must be achieved and strategies must be considered to overcome the complexity of information overload.

Some existing literature highlights the role of changes in management control with time. It was concluded from the research that for developing countries like Sri Lanka, there is less data which gives the idea of adopting new controls and merging them into existing controls. The managerial concept includes various factors like environmental impact, stakeholder and management pressure and domestic regulatory pressure.

The previous studies also highlight the role of risk based management and organizational strategies towards sustainability. But there is still a need for the alignment of the strategies with sustainability. For this purpose, Sustainability Reporting (SR) can be enforced.

A research analyzes the extent to which health and safety control systems influence health and safety issues by surveying 108 Italian non-listed firms and it was found that the existing control mechanism is not providing a hundred percent positive result and so, new mechanisms need to be established by adding intersubjectively testable information. Some literature has shown the importance of MCS tools, which provide strategic responses, for Institutional Pressure for Sustainability (IPS). The study about the relationship between External Environment Reporting (EER) and Internal Strategies, Processes and Activities (ISPA) addresses the importance of integration of the above two for considering financial and environmental impacts of decisions. EER such as Carbon measures associated with the Carbon Emissions Management And Reporting Scheme (CEMARS) drives its relationship with improving sustainability. EER can be integrated with MCS which serves the same purpose.

Small to Medium-sized Enterprises (SMEs) were examined to make the conclusion that the development of Environmental Management Control System (EMCS) will lead to the improvement in the performance by providing environmental sustainability. Existing literature also examines carbon tools which can be integrated with traditional management and the roles that sustainability management plays in this. It can improve sustainability with four strategies which are: separation, selective coupling, combination and hybridisation. These strategies combine with tool making activities like procedural sequencing, assimilating, equating and integrating are useful. It leads to better embedment of ecological logics in organizational strategies. By investigating the fate of the Balanced Scorecard (BSC), it was concluded that multiple networking mechanisms are prominent.

A predominantly important case study by H&M (a multinational clothing company) was performed to determine the average monthly wages (base wages, overtime wages and standards for when to consider benefit contributions) to promote social sustainability. In 2012, H&M started collecting the data through in-person audits and the process was revised in 2016. Monthly wage tracking was implemented in the supplier factories. The validation process involved both desktop and on-site procedures to ensure the accuracy of data. Supplier firms

used to submit their wage through the web portal provided by H&M and the following results were obtained. [21]

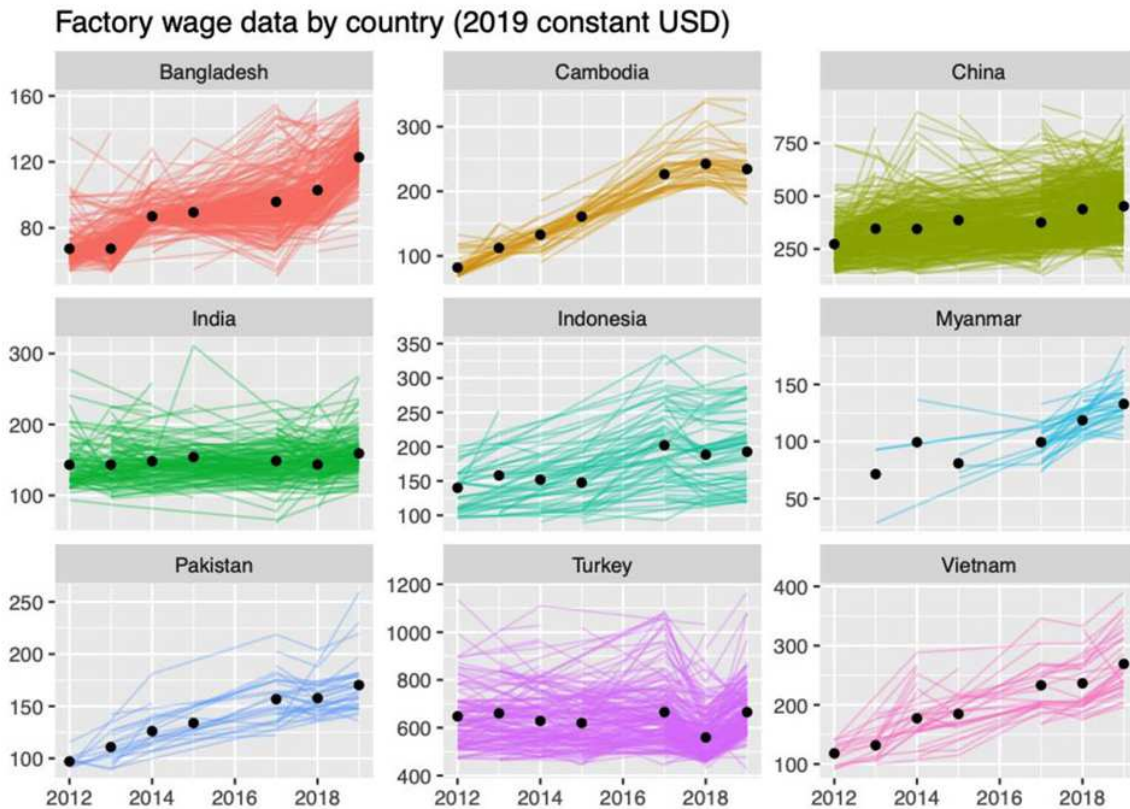


Figure 11: Factory wage data by country

This study depicted the heterogenous trends among different countries and addressed the need to implement country-specific measures to ensure sustainability.

2.5 Theoretical Framework

Various tools have been used to provide the theoretical framework. Some Valuable ones are explained below:

1. Simon's Levers of Control Framework:

It was developed by Robert Simons. It is a strategic management tool that helps the businesses to balance the need for innovation and creativity with control and accountability. There are four levers: Belief Systems, Boundary Systems, Diagnostic Control Systems, Interactive Control Systems. By controlling the organization with

these four levers, a balanced approach can be created towards the achievement of innovation. Simon's Lever of Control Framework (1995) has already been applied in the study of sustainability strategy and control (20). This helps the organizations to overcome the issues that they are facing in the integration of sustainability with business activities. This focuses on the competitive aspects. Simons' (1995) Levers of Control (LOC) Framework is used to frame and analyze changes in MCS [42]. All the levers of control are used in the study. First, Belief Systems which describes the core values of management control. Second, Boundary Systems which explains the limits within which the management must work. Third, Diagnostic Control Systems tells about the management of performances. It also tells about the internal controls like distribution of duties and tasks. Last, Interactive Control Systems which are used by the managers to involve themselves in decision making.

These levers also inform about how it balances MCS with sustainability agenda. A balance between these different uses of MCS is fundamental to the success of any strategy (Mundy, 2010; Simons, 1995; Widener, 2007) and therefore appears of primary importance for the successful management of CSR strategy [38]. MCS contains the information and the procedures which are used by the managers to maintain organizational activities.

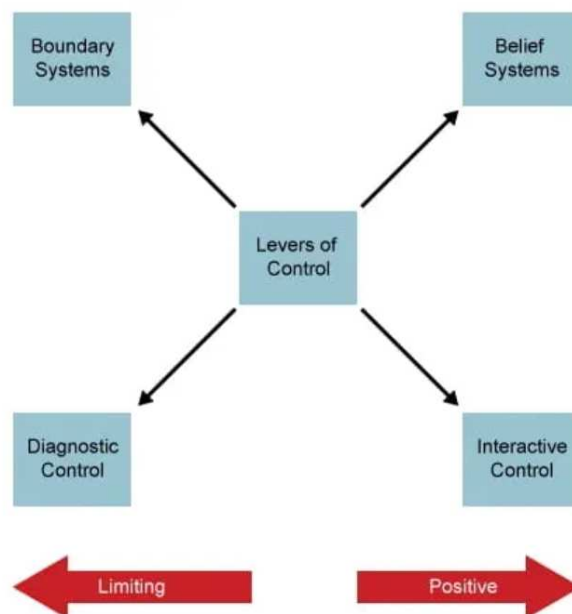


Figure 12: Levers of Control

2. Balanced Scorecard (BSC):

BSC was developed by Robert Kaplan and David Norton. It is a strategic management tool and provides a comprehensive framework for translating the vision and strategy of the organization into performance measures. It adds additional purpose to the existing to ensure a balanced view of organizational performance. There are four perspectives of BSC which are: Financial perspective, Customer perspective, Internal business processes perspective and learning growth perspective. BSC, by combining all perspectives ensures that strategic objectives are aligned across all areas of the organization. The philosophy of Balanced scorecard focuses on the functional impacts of non-financial indicators as an effective measure against the issue of management. In this sense, the Balanced Scorecard literature shows the pitfalls of trying to understand the relationships between non-financial and financial performance [23]. The balanced scorecard report is used in the studies to perform monthly performance monitoring. Colour-coded status indicators for each KPI under the four perspectives were significant elements of SLB's BSC system [35]. But still BSC was proven to be a hindrance due to disputes. It results in the end of the scorecard.

Balanced Scorecard

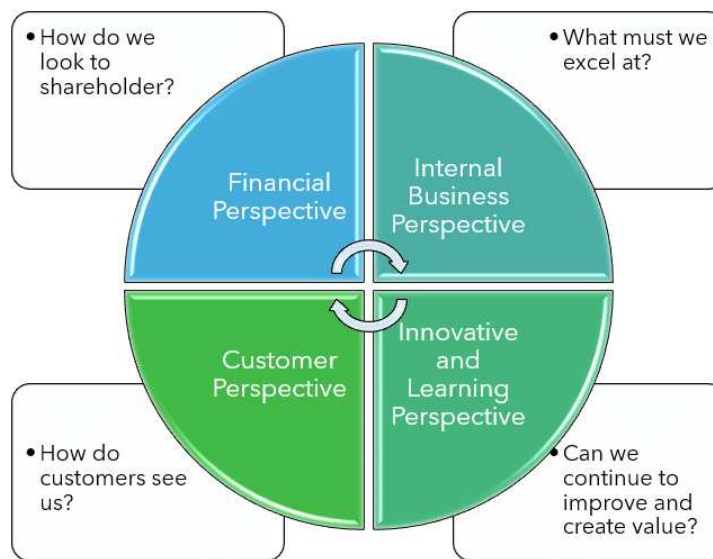


Figure 13: Balanced Scorecard

Some major designs were made to integrate sustainability and CSR with the balanced scorecard model. For this, the relationship between social and corporate strategy was taken into account. BSC was supposed to reflect and communicate multiple measures. But it was observed that the applications are not proper. The rise of balanced scorecards and customer relationship management systems has released a surge of management as finance managers seize the opportunity to impose even more targets and measures and control performance against them...[26].

3. Sustainability Control System (SCS):

This is a framework used by the organizations to control sustainability performances. These systems integrate sustainability with strategic planning. These systems integrate sustainability with strategic planning. It ensures that the environmental, social and economic considerations are balanced with the traditional organizational aims. SCS includes: Strategic Alignment, Performance Measurement, Data collection and analysis, Reporting and Communication feedback and Continuous improvement, Compliance and risk management, Employee engagement and training.



Figure 14: The framework of Sustainability Control System

These help in the systematic management and environmental and societal impact. This enhances business resilience and reputation. Different systems have some traditional approach. Alternatively, the LOC framework facilitates the interplay of diverse control systems and allows for consideration of sustainability control mechanisms[3].

4. Organizational structure arrangements:

Organizational structure arrangements explains the arrangement of lines of authority duties and communication medium of an organization. It deals with the distribution of roles, power and responsibilities among different levels of management. There are various types of organizational structures which can be used to build sustainability in businesses. These are - Hierarchical Structure, Matrix structure, flat structure, Network structure, divisional structure, circular structure, and team-based structure. Each of these has their own advantages and disadvantages and can be chosen on the basis of size, strategy, nature and external environment of the organization.

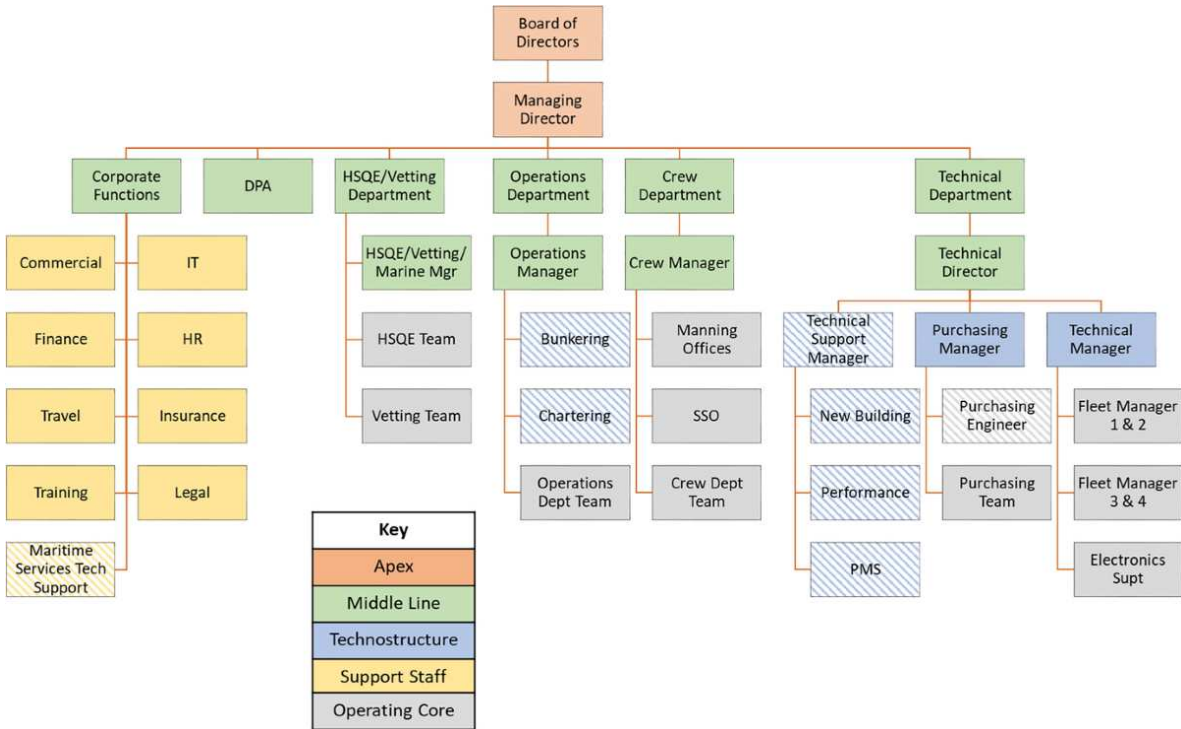


Figure 15:Organizational Structural Configurations

5. Carbon Performance Indicators:

These indicators enhance sustainability efforts by providing data to analyze and improve environmental impact. There are various indicators for business

sustainability. The businesses have to collect data for carbon emission for environmental sustainability. Businesses use carbon intensity to improve performance. By tracking the measures of energy consumption which will optimize energy use to enhance sustainability. Organizations buy carbon offsets to compensate for necessary emissions. The figure below depicts an example of a possible way for reporting the emissions by considering various factors and working as an indicator to improve sustainability measures in an organization .

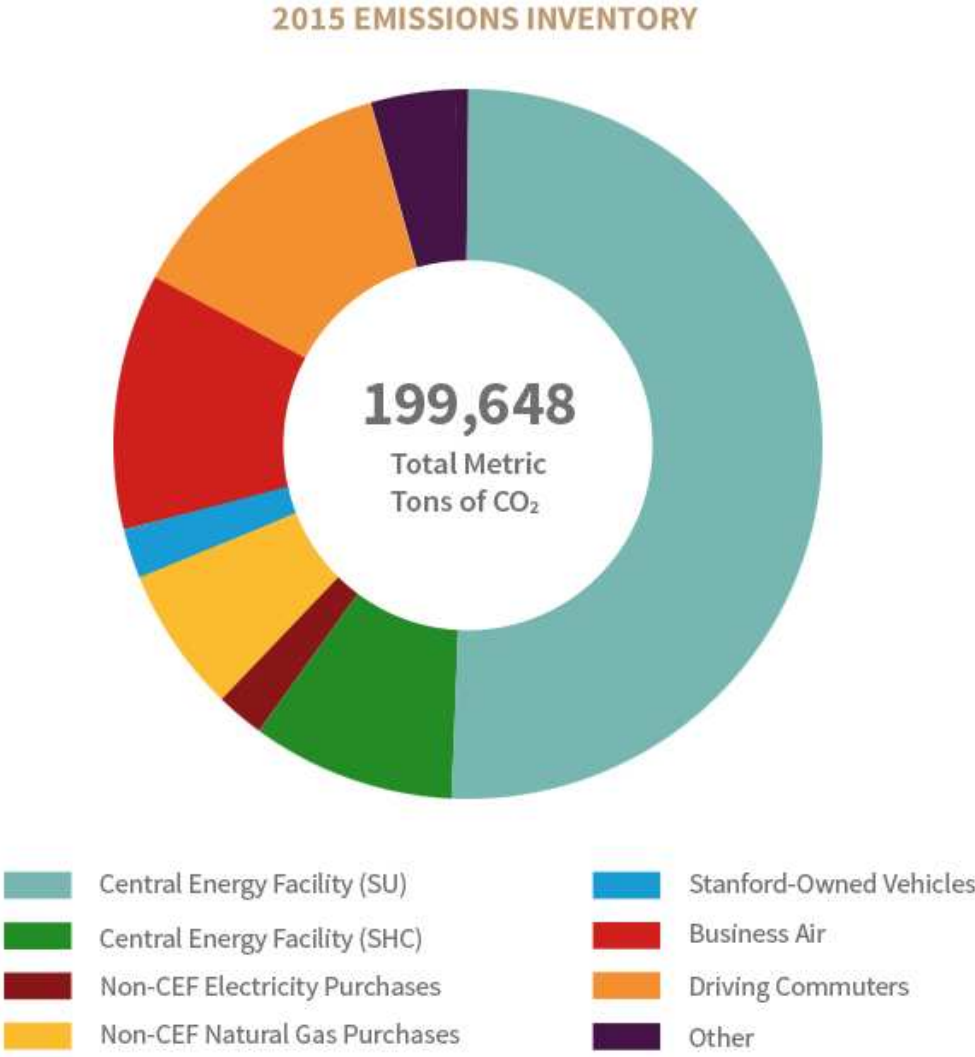


Figure 16: Emissions Inventory performing as an indicator

6. Cost accounting systems:

By merging cost accounting with sustainability initiatives, environmental as well as financial performances can be improved. The key elements include - Cost identification, Cost accumulation, Cost assignment and cost analysis. For the sustainability purposes, different types of cost accounting systems can be adapted for example: Process costing, Job order costing, Standard costing, Activity-based costing, Marginal costing etc. These are beneficial to enhance resource efficiency and improve environmental performance. The accuracy in cost allocation ensures sustainable consumption. This also leads to performance measurement and risk management. It leads to transparent reporting which benefits in building trust with stakeholders. It balances financial performance with environmental and social responsibility.

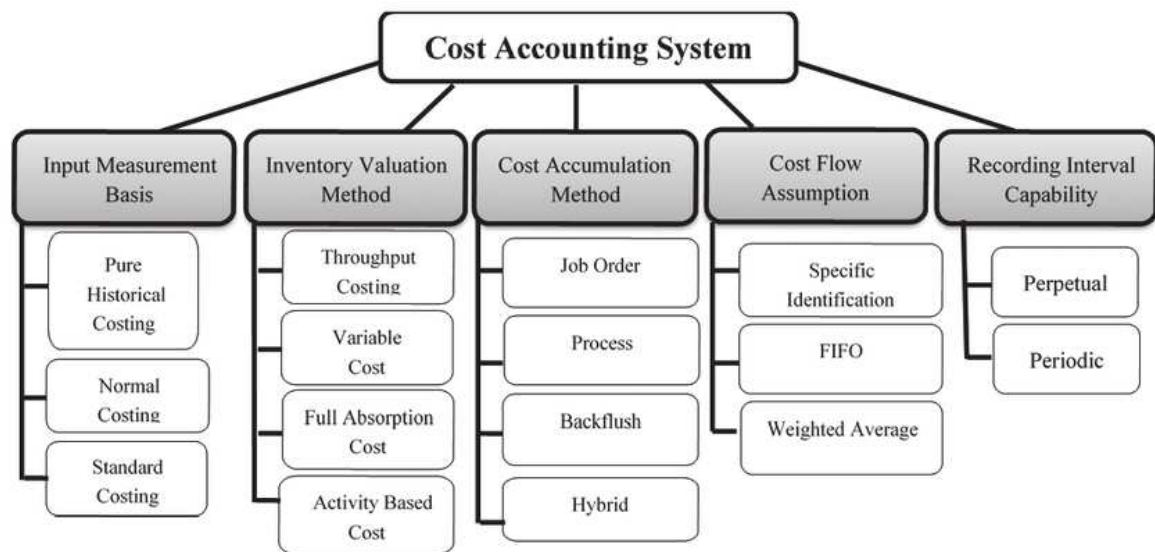


Figure 17: Cost Accounting System

7. Performance Measurement Systems (PMS):

These are the frameworks designed to enhance the efficiency of business processes. The work of PMS includes the collection, analysis, and reporting of performance data, helping companies to monitor and improve their activities, align activities with strategic goals, and enhance decision-making. It provides a strategy to improve the performances at organizational as well as individual level. The key components of

PMS includes balanced scorecard, Key Performance Indicators (KPIs), performance appraisals, and benchmarking. The study uses this framework to enhance decision-making, strategic alignment, accountability and transparency. The implementation of these systems are challenging in the aspect of data quality and availability, complexity, resistance to change and cost.

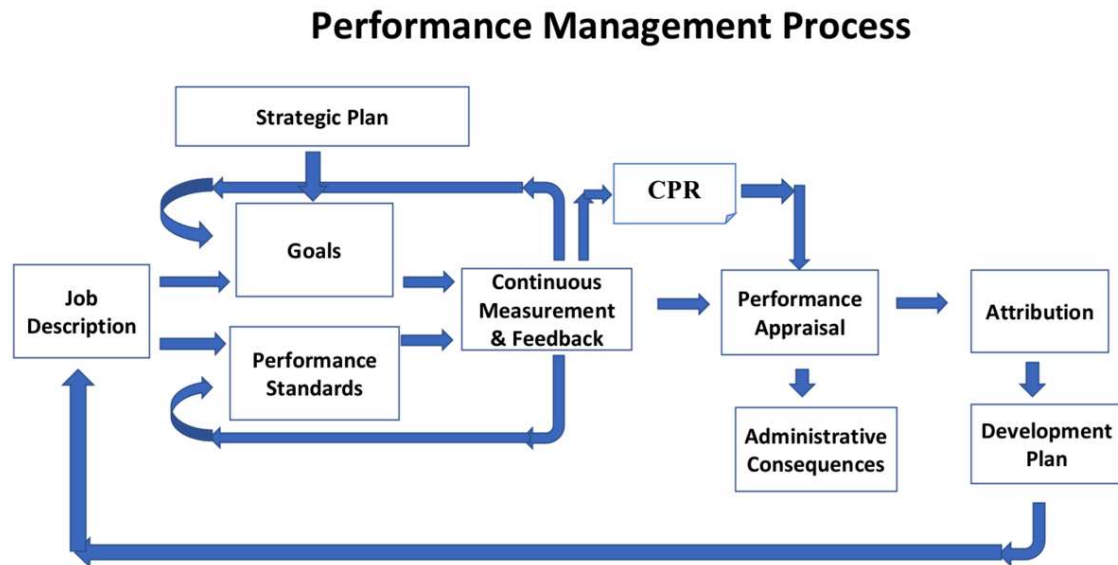


Figure 18: Performance Management Process

- 8. Environmental Management Accounting (EMA):** This branch focuses on analyzing environmental costs and performance into business decision-making. The analysis focuses on the relationship of financial and non-financial activities with environmental concerns. EMA examines costs related to environmental impacts like waste management, pollution control and energy consumption which enhances profitability. EMA supports strategic planning, compliance with regulations, and corporate social responsibility initiatives.

There are two types of EMA:

- I. Monetary Environmental Management Accounting (MEMA)
- II. Physical Environmental Management Accounting (PEMA)

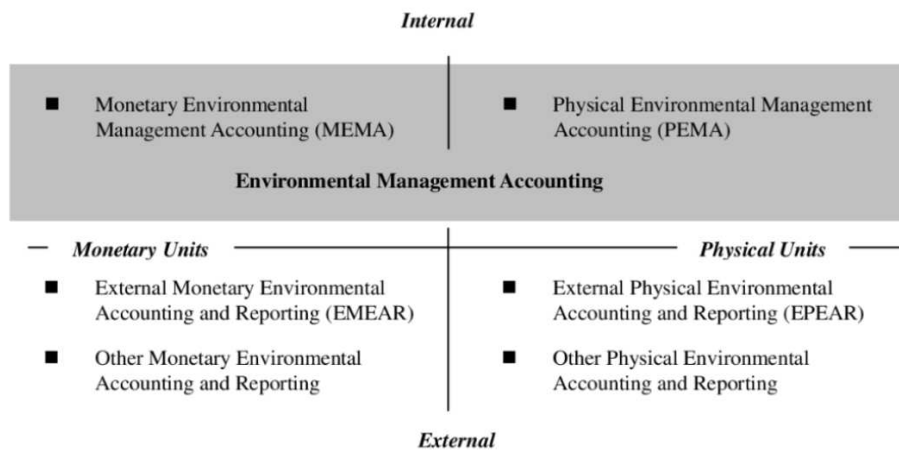


Figure 19: Environmental Management Accounting and its types

EMA is beneficial in cost saving, enhancing decision making, regulatory compliance, sustainability reporting and strategic planning. Various challenges have been observed in the implementation. Collecting data has been challenging. In addition, integration with existing systems, employee training and awareness are some other common concerns. . By utilizing both monetary and physical EMA, organizations can gain a comprehensive understanding of their environmental impacts and make more informed, sustainable business decisions.

9. SoFi (Social Finance):

It is an internet-based financial services platform which presents a range of products. It includes loans, mortgages, investment services and banking solutions. It provides an interface which is easier for tech-savvy users to use. It gives innovative financial tools to manage finances efficiently.

Key features of SoFi includes:

- I. Loans - These include student loans, personal loans and home loans.
- II. Investing - There are three kinds of investing which are automated investing, active investing and retirement accounts.
- III. Banking - Cash management is an important part of banking. Cashback rewards credit cards have various benefits.

- IV. Insurance - These include term life insurance policies which helps to protect families and financial risks. Some other insurance for renters and partnerships are also there.
- V. Financial Planning - financial planning is done with all the factors which includes financial advisors and Educational resources.

SoFi is beneficial as it provides a user friendly interface. It has competitive rates and no fees. It provides comprehensive financial solutions. Advanced financial tools and features, such as automated investing and personalized financial advice are helpful. Challenges like market competition and regulatory compliance are there. It aims to simplify financial management.



Figure 20: Social Financing Strategy

10. Diagnostic Control Systems:

These are the mechanisms that organizations use to monitor performance. This ensures the establishment of relationships between strategic goals. By setting performance standards and measuring actual results against these standards, Diagnostic Control Systems help organizations identify deviations, assess risks, and implement corrective actions to optimize performance.

Key components of Diagnostic Control Systems are:

- I. Measurement Systems
- II. Feedback Mechanisms
- III. Performance Standards
- IV. Corrective Actions

This is beneficial to improve performance, risk management, strategic alignment and enhanced decision making. The implementation of Diagnostic Control Systems is quite challenging. By setting standards, measuring results, providing feedback, and implementing corrective actions, these systems help ensure that organizational goals are achieved and risks are managed.

Types of Diagnostic Control Systems are:

- I. Operational Controls
- II. Strategic Controls
- III. Financial Controls
- IV. Compliance Controls

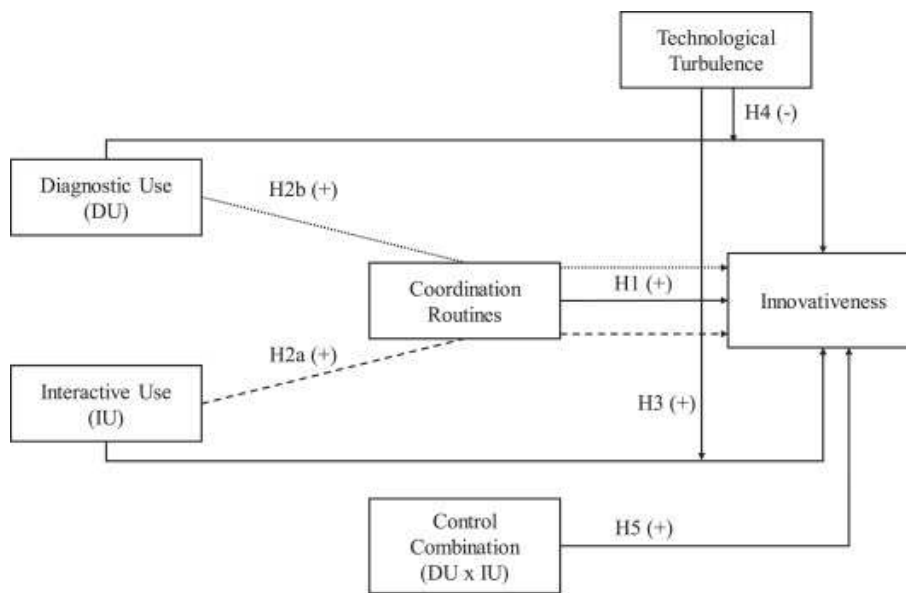


Figure 21: Diagnostic and interactive view point towards innovations

11. Interactive Control System:

It facilitates dialogues and communications between managers. Unlike diagnostic control systems, which focus on monitoring and maintaining performance within set parameters, interactive control systems are designed to promote innovation, learning, and adaptation in a dynamic environment. They encourage continuous questioning, exploration of new ideas, and strategic renewal, ensuring that the organization remains responsive and agile in the face of change.

Key components are:

- I. Focus on Strategic Uncertainties
- II. Involvement of Top Management

- III. Frequent and Regular Interactions
- IV. Continuous Monitoring and Adaptation
- V. Encouragement of Debate and Dialogue

These are beneficial for the enhancement of innovation and creativity. It improves strategic alignment. Employee engagement gets better. Various challenges are there including resistance to change and balancing control and freedom.

Methodology

3.1 Systematic Literature Review Method

The methodology employed for this study is Systematic Literature review (SLR) to examine the role of Management Control System (MCS) in supporting sustainability because this method allows identification of research questions explicitly along with providing better justification for the future research in this field. The process is well suited for scientific research and for developing skills for searching and filtering information which are relevant for the study. The research was planned in a systematic way following the steps which includes Formulation of research question, Searching studies via keywords and database selection, Selection and evaluation of studies using the inclusion and exclusion parameters, Analysis and synthesis of the selected articles and findings, and reporting of results for further researches or actions.

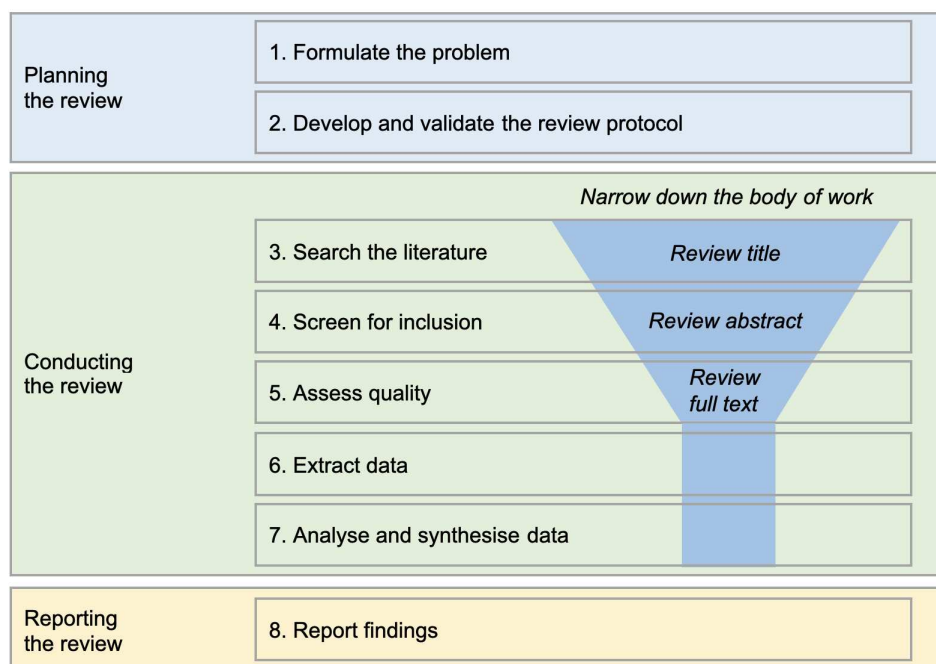


Figure 22: Systematic Literature Review Method

The research leaves an impact in the study area by analyzing various case studies as a guide to identify, select and critically appraise relevant studies. This chapter significantly provides insights about the steps taken to conduct SLR which includes the search strategy, inclusion and exclusion criteria, source of data and data collection process.

3.1.1 Search Strategy and Search Strings

The search strategy involved searching the Web of Science(WOS) database using the main topic with certain **search strings** and by detailing the exclusion and inclusion criteria. This method facilitated the research task by including elements of conceptual thinking.

The following search string is listed below:

TI= ("management control*" OR "control package") AND (sustainability OR "climate change") OR AB= ("management control*" OR "control package") AND (sustainability OR "climate change") OR AK= ("management control*" OR "control package") AND (sustainability OR "climate change")

3.1.2 Inclusion and Exclusion Criteria

Once the search strategy has been established, the requirement for filtering comes into play to ensure the quality of the selected articles. To achieve this we can apply the inclusion and exclusion criteria to meet certain requirements for the research. The criterias has been defined as follow:

Inclusion Criteria:

- Publication titles must be from journals which are published on Chartered Association of Business Schools (CABS).
- Document types must be research articles.
- The rating of the document must be 2,3,4 or 4*.
- Articles must be published in the English language.

Exclusion Criteria:

- Articles from the journals which are not listed in Chartered Association of Business Schools (CABS) and which are rated below 2 must be removed.
- All the journals published in the language other than English must be removed.

- The document types which are not research articles like reviews, editorials, conference papers, etc., must be removed.

The process for further continuity of research relies on these 2 protocols (3.1.1 and 3.2.2). Once done, the review of the previous articles and research can start which has been described in section 3.2.

3.2 Data Collection

3.1.1 Source of Data

The primary source of data collection has been chosen as Web of Science (WOS) as it allows us to quickly know the relevance of an article. WOS provides authoritative research information due to its comprehensive coverage of high-quality academic journals and fast paced search capabilities. By this strategy, the requirements of this phase are covered in large percentages which guides our research in the right direction.

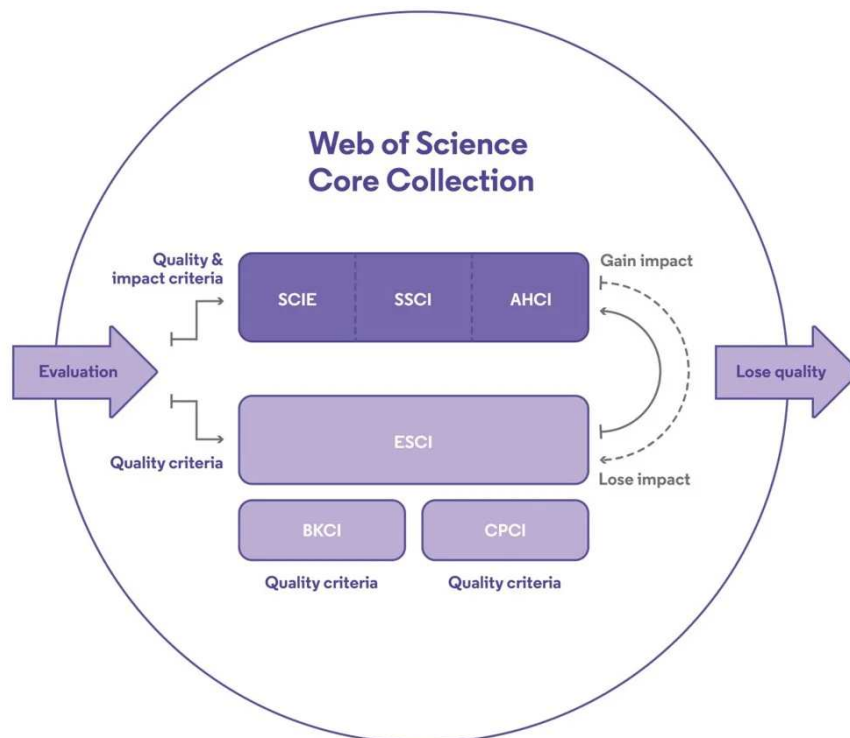


Figure 23: The collection strategy of WOS

3.1.2 Article Selection Process

The initial search has been conducted by using the defined search string in the Web of Science (WOS) database and then the titles and abstracts of retrieved articles were reviewed to assess their relevance based on the inclusion and exclusion criteria mentioned above.

The objective of this stage is to review the full texts of the articles that passed the initial screening to confirm their relevance and quality of the study. Finally, a set of articles is selected based on the review of full text.

After all the specifications were met through a deep screening process, 32 articles were chosen for conducting the research on the topic.

4

Results

4.1 Trends of Publications

The trend of Publications in the field of integrating Management Control Systems(MCS) with sustainability is reported below:

1. The year with the highest number of researches conducted about the topic was **2017**, during this year 5 articles were published. This is followed by **2019** and **2024** which experienced the publications of 4 articles.
2. The year which received the lowest number of publications were **2015, 2018** and **2020** with publication of just 1 article each.

The trend analysis was done in 2 ways which are mentioned below:

1. Pie chart: It is used to check the contribution of each year towards the sustainability integration with Management Control System (MCS) to know the exact proportion of each year to the relative size of the entire dataset (Figure 7).

The trend analysis indicates that there was a noticeable peak in the research activities in 2017 (as mentioned above) and years 2015 and 2018 experienced a decline in the trend.

2. Line graph: It depicted the trend of publications over time. This study was useful to study various patterns and fluctuations and to predict the future trend . Overall, the trend has fluctuated at different instances of time but by the end we can see a rising tendency with the publications in 2024 being 4 articles.

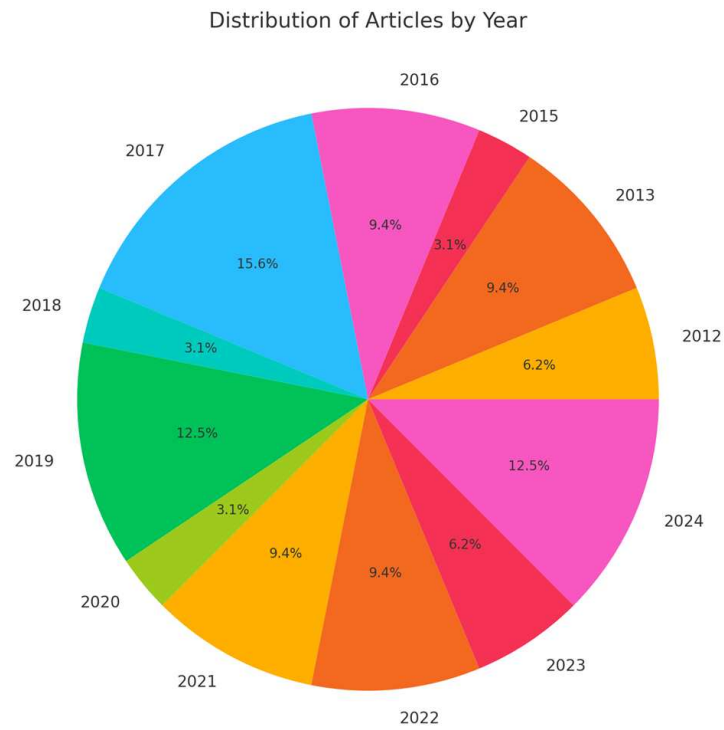


Figure 24: Distribution of articles by year

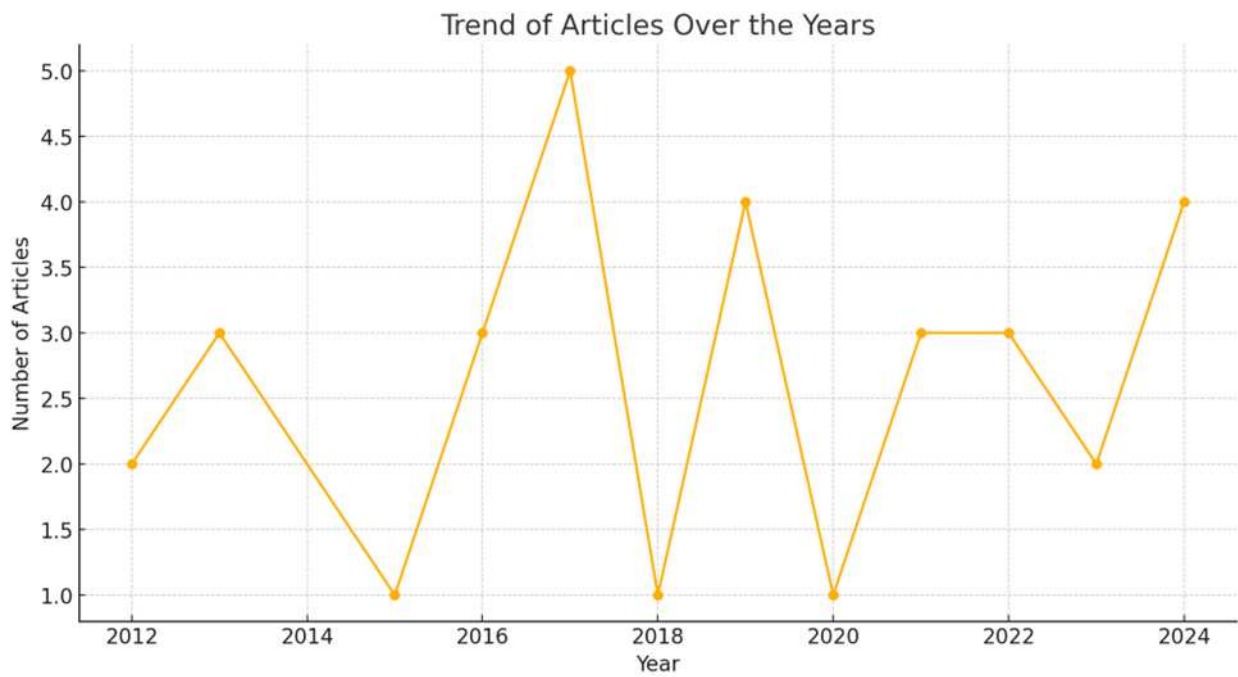


Figure 25: Trend of article publications over the years

4.2 Quantitative and Qualitative Analysis

The two broad kinds of research approaches are Quantitative analysis which is done to test or confirm the theories and assumptions and Qualitative analysis which is done to understand or explore the core concepts and theories. The statistics of the distribution of the researches in these different types is as follows:

Qualitative : 22 articles (which contributes to 68.8%)

Quantitative: 8 articles (which contributes to 25%)

The remaining contribution is done by mixed approach (the combination of quantitative and qualitative analysis) which is 6.3% due to the publication of 2 articles following this type of method.

The pie chart (Figure 10) depicts that there is a higher number of contributions in the research which are following a qualitative approach.

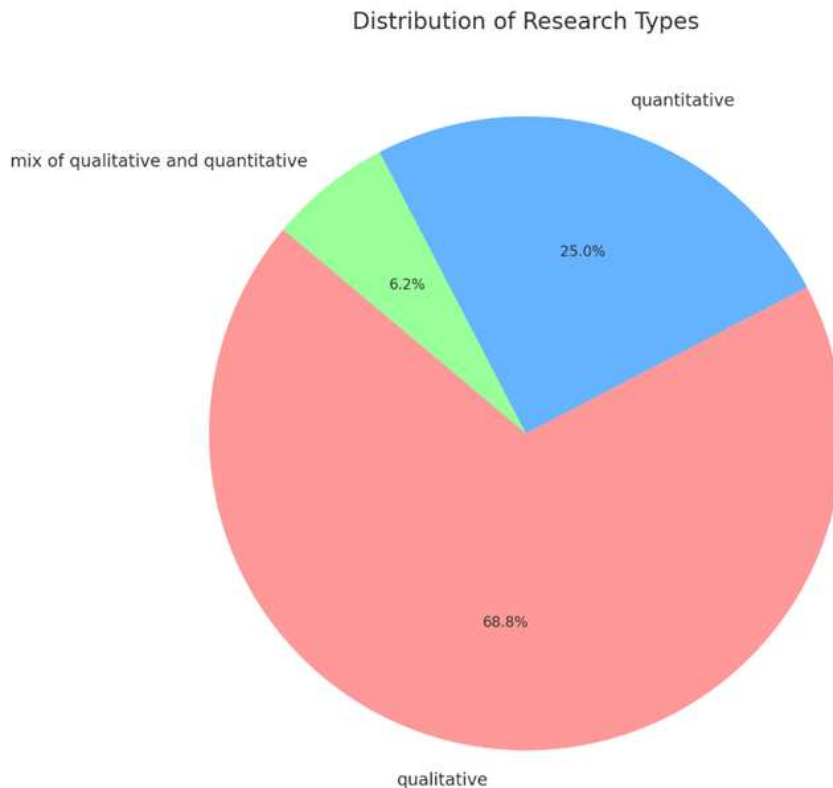


Figure 26: Distribution of Research types

4.3 Analysis of Management Control System Tools

This section provides an analysis of the MCS tools to support sustainability which were thoroughly discussed in section 2.5.

The tools which are mentioned in higher frequency in the articles are as follows:

1. Balanced Scorecard (BSC)
2. The Levers of Control (LOC) Framework

These two are discussed the most in the study and the reason behind that is their critical role in the current management control systems. These are capable of maintaining balance between financial and non-financial goals. The alignment of strategic objectives by these helps in maintaining various control mechanisms. In addition, these are useful to foster continuous dialogues and ensure adaptive and responsive management.

1. **Balanced Scorecard (BSC):** This tool has been featured in multiple articles as a tool to balance the financial and non financial performance. The BSC is versatile as it can be accepted for acquiring sustainability.
2. **The Levers of Control (LOC) Framework:** This tool is greatly used in the study due to its ability to maintain a balance among the four LOC which are - belief, boundary, interactive, interactive and diagnostic. It helps to manage the organizational systems.

The tools which were mentioned in lower frequency in the articles are as follows:

1. Eco-control Life cycle costing
2. Environmental management accounting
3. SoFi (internet based software tool)
4. Interactive Control System
5. Diagnostic Control System

4.4 Social and Environmental Dimensions

Sustainability mainly consists of 3 types: Social, Environmental and Economic. Our goal is to study the number of articles emphasizing different kinds of sustainability within management control practices and reflecting a comprehensive approach towards sustainability.

The statistics of the types of sustainability covered in 32 articles are as follows:

Social - 12.5%

Social and Environmental - 21.9%

Social, Environmental and Economic - 28.1%

Others - 37.5%

The pie chart showing the distribution of different dimensions is shown below:

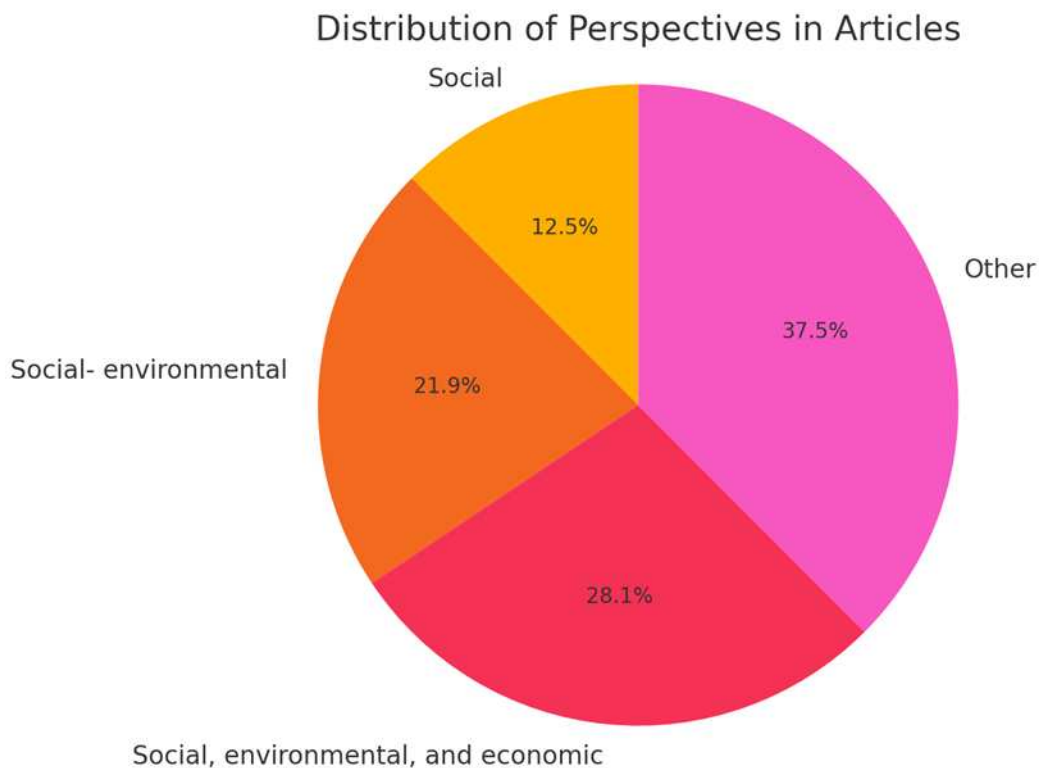


Figure 27: Distribution of Perspectives in articles

The distribution highlights that Social and Social. Environment maps a higher percentage of research together ($12.5 + 21.9 = 34.4\%$) than the research done on Social, Environmental and Economic sustainability (28.1%) which reflects the need to proceed with a more holistic approach towards sustainability.

4.5 Aggregated Results

1. Trends of Publications: The highest number of publications were in 2017 with 5 articles and the lowest were in 2015, 2018 and 2020 with 1 article each.
2. Research approaches: Qualitative analysis dominates by being the major focus in 68.8% of the research articles and Quantitative analysis accounted for 25% while mixed approach which has been used in 6.3% of the articles.
3. MCS Tools: Balanced Scorecard (BSC) and Levers of Control (LOC) Framework have been widely researched in the articles and indicates that these tools have been majorly studied while tools Eco-control Life cycle costing, Environmental management accounting, SoFi (internet based software tool), Interactive Control System, Diagnostic Control System are also valuable but are not researched deeply and frequently.
4. Sustainability Dimensions: 12.5% of the articles covered the Social aspect of sustainability and 21.9% covered both social and environmental while the articles containing all the 3 dimensions (Social, Environmental and Economic) were 28.1% of the whole.

4.6 Interpretation of Results

The trend in publications suggests the growing interests of respective organizations in integration of sustainability with MCS and with time it is gaining recognition. The lower number of publications in the years 2015, 2018 and 2020 addresses the gaps that needed to be filled by the future studies. The trend suggests that future researchers might want to continue studying the topic and potentially need to focus on new challenges.

The higher percentage of qualitative analysis suggests that researchers are more keen to discover and explore the underlying concepts. Future researchers can delve deeper into case studies and can uncover practical implications. The proportion of quantitative research is less but consider it more valuable. The hypothesis validation remains an integral part of revealing theories. Less studies in this area opens many opportunities for the future researchers to delve deeper into testing and experimentation. On the other hand, the future of mixed approach is promising as the researchers adopting this method can benefit from the strength of both paradigms.

This can be well interpreted from the study of MCS tools that Balanced Scorecard (BSC) and Levers of Control (LOC) are widely studied because they are well established and have various applications on the other hand tools like Eco-control, Environmental Management accounting, etc., are specific to context and SoFi(Internet-Based Software tool) might be researched less due to its less adoption. This clearly depicts study gaps which can be targeted by future researchers to explore their effectiveness and find the implementation challenges and possibly a way to overcome it.

As stated before, Future research needs to emphasize a holistic approach, considering an interplay between social, environmental and economic factors. The Social and environmental dimensions of sustainability gets focused in 21.9% of the research which depicts that researchers are well aware of the need to address the surroundings, both natural and social. The highest proportion is taken by social, environmental and economic sustainability which highlights the importance of potential in economic growth. The future researchers can analyze cost - benefit and financially sustainable practices.

4.7 Comparison with Previous Studies

In this section, we will compare the current study with all the previous researches that were reviewed. The findings of this study and previous researches are consistent about the sustainability and management control systems. This study is qualitative while most of the researches reviewed from the selected articles were also qualitative . Though, this study provides a comprehensive overview of the trend of existing publication topics and the types of research approaches which can aid the future researchers with their studies. In addition to this,

This study is primarily focused on integration of Management Control Systems with sustainability practices covering all the three dimensions of sustainability (Social, Environmental and Economic) while the major focus of previous studies were covering the social, environmental and other aspects leaving behind the economic viability which is the major attraction point for stakeholders. This study has deeply realized that sustainability needed to be achieved in both financial and non financial metrics. Some of the previous studies have mentioned these points but were unable to maintain a balance between these two metrics. This study's comprehensive analysis, research methodology and statistics are thorough and reliable.

4.8 Implications for Theory and Practice

The study highlighted the importance of Environmental management systems, balanced scorecards and emphasizes how businesses can align their practices with sustainability. Many complexities (like understanding the relationship between CSR performance and execution) have been observed for the implementation of sustainability and needed to be addressed in the future research. Organizational strategies like strategic decision making, prioritizing non financial measures plays an essential role in overcoming challenges. Researchers can explore ways to simplify sustainability practices and this can be achieved by a mix method approach (both qualitative and quantitative). Aligning the environment of the organization with the control mechanics and focusing majorly on health and safety can improve the performance of sustainability. Some other concepts like Carbon and Waste management, Energy consumption and wage intervention are integral parts of sustainability which completes the picture by addressing various scenarios in organizational practices which need to be indicated by some robust performance indicators that effectively measure and promote sustainability.

Future researchers can delve deeper into the thought on how to improve the engagement of stakeholders and merge their interests into MCS frameworks. Future research can also be redirected into the development of advanced tools and methodologies for integration of non financial metrics with MCS. In addition, after the adoption of integration of MCS and sustainability in an organization, it is important to keep track of the sustainability reporting which is essentially the duty of the organization to maintain the credibility and transparency of the report.

This study provides valuable insights to practitioners, researchers who are striving to establish a balance between financial and non financial metrics in an organization.

4.9 Limitations of the Study

This study, at this stage, is specific to the integration of MCS with sustainability, without considering other aspects of the management control system which might affect its integration. The case studies discussed in this paper have focused on large scale privately owned organizations, because of which this study might differ in the applicability in small and medium sized businesses. The study's findings may vary widely depending on the nature of the industry. Future researchers may need to extend a generalized proposal by taking different implications into account. The paper is purely qualitative, which leads to subjective understanding of the phenomenon stated and therefore, one more possible gap to fill is the quantitative analysis of this paper to further enhance the reliability of this paper. Furthermore, this study's scope is limited to a certain database, though the articles were chosen with a certain set of rules with all the criteria for searching defined, but there is still probability of not listing an initiative or practice.

5

Conclusion

The result of the study shows the role of integration of Management Control Systems (MCS) for sustainability in how organizations can enhance their strategies and execution to achieve sustainability. The research highlights that engaging sustainability into MCS will lead to enhanced decision-making by maintaining financial, environmental and social controls. The alignment of sustainability with core strategic goals of businesses explains that sustainability is an integral part of the overall business plan.

Furthermore, the research shows that integrating sustainability measures within MCS gives methods for analyzing and managing sustainability performance. Overall, it can be concluded that this integration is essential for various aspects in businesses and the ultimate result will be the enhancement in innovation and maintenance of a competitive platform.

5.1 Summary of Findings

After analyzing the result, we can summarize the findings of the study. It tells about the important factors to maintain sustainability in the businesses. For this, there is a need to get an emphasis on Environmental Management Systems, Balanced Scorecards and controls. The complexity in the implementation of the processes is observed which can be resolved by further research. Corporate Social Responsibility (CSR) performance and its relationship with execution explains the complexity. Besides the complexity, the current literature highlights the importance of dialogue interactions among different levels of organization which will help to achieve financial goals. By giving importance to non-financial performances, it was suggested that an order should be maintained by considering specific measures. Organizational strategies play a crucial part to tackle the challenges by enhancing strategic decision-making and the performances of organizations. It includes top management promises and the impact of the industrial environment.

In the developing markets, there are high risks and so Risk-Based Control systems must be introduced. These markets face the issues of Institutional Pressure in sustainability practices (IPS). IPS can be handled by active participation. To convince the stakeholders about the idea of non-financial performance, sustainability assurers use different tones like verbal and optimistic for the persuasion. Tools like Sustainability Management Control Tools (SMCTs) can help with the pressure. For SMEs, some formal as well as informal controls can be utilized. These include targets, audits, and communication strategies.

Another thing that influences sustainability is Sustainability Reporting (SR). By aligning the organizational environment and control mechanism with the aim of achieving sustainability performance can be enhanced. Health and Safety issues are considered which are affected by formal and informal control systems. More focus on health and safety ensures sustainability. The findings reveal the relationship between external environmental reporting (EER) and internal sustainability practices (ISPA) which was introduced by CEMARS. The implementation of integrated reporting (IR) was found which results in positive marketing.

Carbon management systems have been analyzed and their relationship with the traditional management system was studied and the findings explain the role of carbon tools with respect to the frequency, orientation and information sharing. Managing energy consumption also leads to long-term sustainability. This can be approached by collecting the statistical data and arranging the expenses in the sequence of priority. The problem faced while achieving this goal can be overcome by a strategic approach such as overcoming communication gaps among different levels in the company. The terms waste and sustainability are interlinked as sustainability cannot be achieved without waste management. Interventions which are related to wages were suggested as it indicates the positive effect on the wages as well as to the commercial relationships.

From the findings of a study, it was seen that Management Accounting and Control Systems (MACS) has shown some immense effects on environmental innovation practices and operational performance. The environmental sustainability issues can be tackled by using some MCS elements. Environmental sustainability destabilizes when logics prioritize financial profits only. There comes a barrier between the demands of sustainability and profit earnings. A hybrid mission was found to balance out the environmental conservation and financial demands.

The conclusion from the findings is that although balancing sustainability with financial performances is difficult, with the help of Management Control Systems, which include all the tools, systems and reporting, the issues can be handled. It gives insight about the traditional management control system which tells about the existing theoretical framework and tells about the importance of relationships among different tools. So the findings explain organizational strategies to achieve the goal.

5.2 Contribution to the Field

In the analysis of sustainable business practices, it was found that there is a significant contribution to organizational stability. These practices include Environmental Management Systems (EMS), Balanced Scorecards, and impactful control mechanisms. This leads to the alignment of organizational targets with environmental and social goals.

The findings highlight the issue of complexity in the implementation of sustainable practices in organizations. This focuses on the need for further research on the problem and guides towards the development to enhance operational efficiencies. By examining these complexities, integration of sustainability into corporate strategies will be easier.

The study also revolves around Corporate Social Responsibility (CSR) which has a huge impact on organizational performances. The importance of dialogues between the different organizational levels highlights the relationship between CSR and financial goals. By the use of CSR, a culture that promotes its integration with organizational levels is introduced which helps in maintaining balance between social and environmental goals and financial goals.

The findings undermine the importance of non-financial processes which gives a holistic view of organizational processes. The study contributes in teaching the balance between financial and non-financial goals for the future references which will provide transparency.

The complexities can be overcome by organizational strategies. The research guides the way in which top management promises, supportive industrial environment and strategic decision-making leads to innovation and sustainability. This will help the companies to overcome the environmental and social challenges.

In the markets of developing countries, the huge risk was analyzed for applying tools for sustainability that lead to the introduction of Risk-Based Control Systems. The institutional

pressure is a huge problem and the study shows that the active participation and strategic implementation of the controls helps to tackle the issue. The problem that the stakeholders sometimes don't accept the concept of the integration of financial and non-financial goals for the future of businesses can be resolved by the persuasion of sustainability assurors. The study contributes to explain the system of tones for persuasion. Another method that was suggested was Sustainability Management Control Tools (SMCTs) applications for the management of external pressure.

The research gives the data to conclude that the SMEs require the integration of formal and informal control mechanisms for the promotion of sustainability. This requires controls like target, audit and effective communication. The study provides the knowledge about the application of sustainability reporting (SR) which enhances the organizational transparency and accountability. This provides data to the stakeholders to believe in the sustainability system. Market acquires positive results by maintaining the relationship between External Environmental Reporting (EER) and Internal Sustainability Practices (ISPA).

Environmental impacts can be reduced by Carbon management systems. The system provides strategies to manage energy consumption and carbon emissions. The statistical data on energy usage is proved to be efficient for budget controlling and environmental care. Waste management systems that are found from the study can minimize the impact on the environment. Further the study provides an integration of waste management systems with broader sustainability goals which profits the business.

The introduction of Management Accounting and Control Systems (MACS) in the integration of environmental sustainability into organizational practices leads to environmental innovation and so there is enhancement in operational performance which helps in financial gains. The tension between environmental sustainability and financial profit is resolved by the contribution of a hybrid mission which balances the demands. It minimizes the risk and maximizes the opportunities in the market.

At last these contributions will help the future researchers to present some better contribution from their study by analyzing the problems findings and contribution from this study. Carbon management plays an important role in reducing the effect on the environment.

5.3 Recommendations for Future Research

After going through the findings of the study, some recommendations can be presented for future scientists. The recommendations that are represented can be the basis of the future research and the practical applications of this can be implemented in the existing and future business models. Sustainability is interdisciplinary and so future researchers should emphasize on interdisciplinary research only. It involves elements of environmental science, economics, management, and social sciences. Collaboration between different disciplines is recommended as it leads to creating new strategies which will address the complex challenges to achieve sustainability. Future researchers should dig deeper to understand the complexity in achieving the goal of sustainability so that the frameworks can be developed. The researcher must study the \

interconnections between various sustainability practices and how they are linked to each other. Some models should be developed to analyze the complexities. CSR is a critical aspect of the study and so future researchers should focus on enhancing CSR metrics. It should be made more comprehensive and should reflect the true organizational impact.

As we get from the findings that it is still difficult to maintain a balance between financial and non-financial performances, future researchers should explore more about the ways to make progress in non-financial metrics like environmental impact, social contribution, and employee well-being. This will help in gaining knowledge about sustainable business performances. Future researchers can also focus on organizational strategies as they integrate sustainability into core values of businesses. A deep study should be done which will tell about the role of top management in initiating sustainability and how it can help in overcoming the barriers.

There is high risk in any emerging organization and so it is difficult for them to focus on non-financial processes. Future researchers must focus on enhancing the existing risk-based control systems and adding innovations. The challenges that should be handled by these systems are uncertainties, constraints to the resources and market volatility. Communication holds an important role to persuade stakeholders towards sustainability. The future research should include innovative communication strategies which includes the techniques of tones and its development.

SMEs have unique problems and so the researchers should look at it from a different perspective. Development in the formal controls like audits and targets and in the informal controls like communication strategies is required. The importance of SR was discussed. The future research should work on the integration of SR with other reporting systems. The research work related to carbon management systems focus on innovations in the existing systems and developing tools for better data collection. For environmental sustainability, studies should focus on the enhancement of waste management strategies. There is a huge impact of Management Accounting and Control Systems (MACS) on sustainability. Future researchers should focus on the exploration of MACS with respect to environmental innovation and operational performance. To balance environmental conservation with financial profits which is essential, there is a need to enhance hybrid mission. The study will include developing models to help businesses.

The culture of the organizations should also be studied by the researchers to explore the ways to foster a culture of sustainability in organizations. Sustainability takes a long period of time and so the results should be beneficiary for the long term use. The work should be on leadership, management and the values in organization. Government rules and regulations change with time and so future research should study that along with the study of the subject. International collaboration is beneficial for sharing knowledge across the border as this is an international topic.

In conclusion, future research should have updates about the trends as well as the existing literature to serve for the development of the sector.

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