

# GLOBAL JOURNAL

OF MANAGEMENT AND BUSINESS RESEARCH: D

## Accounting and Auditing

Mauritian Private Sector

Intelligence on Business Operations

} Highlights {

Unraveling Influential Factors

The Impact of Artificial Intelligence

Discovering Thoughts, Inventing Future

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ACCOUNTING AND AUDITING

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## CONTENTS OF THE ISSUE

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- i. Copyright Notice
- ii. Editorial Board Members
- iii. Chief Author and Dean
- iv. Contents of the Issue
  
- 1. The Impact of Artificial Intelligence on Business Operations. *1-8*
- 2. Audit Quality Dynamics in the Mauritian Private Sector: Unraveling Influential Factors through Quantitative Analysis. *9-30*
- 3. Impacts of the Coronavirus on Brazilian Agribusiness and its Relationship with the Gross Domestic Product. *31-42*
  
- v. Fellows
- vi. Auxiliary Memberships
- vii. Preferred Author Guidelines
- viii. Index



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# The Impact of Artificial Intelligence on Business Operations

By Zuo Bruno

*Summary-* Artificial Intelligence (AI) is driving a significant and positive change in how businesses operate, fundamentally changing established models and pushing enterprises towards a more efficient and innovative future. This concise abstract explores the intricate influence of artificial intelligence (AI) on several aspects of corporate operations. It thoroughly analyses the development and present uses of AI, as well as successful cases, obstacles, and forthcoming trends.

## 1. An Examination of the Role of Artificial Intelligence (AI) in the Operations of Businesses.

The introduction provides a comprehensive overview of the development of AI and its incorporation into business operations. The text explores the role of AI in transforming decision-making processes, highlighting its versatility in optimizing operations across various industries. It covers topics such as automation and predictive analytics.

## 2. Artificial Intelligence (AI) is being Increasingly Utilized in Several Aspects of Business Operations.

An extensive examination of AI applications includes the enhanced efficiency of automation, the predictive capabilities of analytics, the transformative influence of AI in Customer Relationship Management (CRM), and its effects on Supply Chain Management. The passage emphasizes the essential role of AI in improving operational efficiency.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON BUSINESS OPERATIONS

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# The Impact of Artificial Intelligence on Business Operations

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## 3. Examples of Successful Implementation of Artificial Intelligence

Case studies are used to demonstrate real-world applications, namely how large companies utilize artificial intelligence (AI) for tailored suggestions, optimizing industrial processes, and detecting fraud in financial institutions. These stories emphasize the concrete advantages that AI provides to many industries.

## 4. Obstacles and Moral Deliberations

Delving into the negative aspects, the abstract explores issues such as data privacy, concerns about employment displacement, and biases in AI algorithms. This addresses the ethical concerns that arise from the integration of AI and emphasizes the importance of developing AI responsibly.

## 5. Emerging Developments and Advancements

The document examines the possible collaborations between AI and quantum computing, the emergence of Explainable AI (XAI) for clear decision-making, and the expansion of AI into Small and Medium-sized Enterprises (SMEs).

## 6. Repercussions for Corporate Executives

The second-to-last section presents valuable perspectives for executives, offering tactics for integrating AI and highlighting the pivotal importance of training the workforce to navigate a future dominated by AI.

## 7. In conclusion

The description provides a concise overview of how AI has significantly influenced business operations and highlights the potential areas of investigation in the always growing field of AI integration.

## I. OVERVIEW

The relentless progression of Artificial Intelligence (AI) in the history of technological advancement has been marked by an intriguing interplay between human inventiveness and machine capacities. This section delves into a detailed examination of the Evolution of Artificial Intelligence, charting its transformational progression from basic rule-based systems to the advanced machine learning algorithms and neural networks that characterize its current capabilities.

The evolution of Artificial Intelligence (AI) has been a significant process.

### a) Rule-Based Systems

Rule-based systems were fundamental in the early stages of AI development. These systems functioned based on explicit instructions, in which human experts encoded their knowledge into algorithms. Although rules were beneficial for certain activities, their inflexibility hindered adaptability.

#### i. The Conceptual Framework of Machine Learning

The introduction of machine learning brought about a significant change in the prevailing mindset. Algorithms have progressed from predetermined rules to systems that can acquire knowledge from data. This was the beginning of a new era, in which AI had the ability to identify patterns, make forecasts, and adjust its behavior based on past encounters.

#### ii. Emergence of Neural Networks

The re-emergence of neural networks, drawing inspiration from the intricate organization of the human brain, signified a critical juncture. Deep learning, a branch of machine learning, enables AI systems to analyze large datasets, identify complex patterns, and achieve exceptional precision in tasks like picture recognition and natural language processing.

#### iii. Reinforcement Learning and Beyond

Reinforcement learning is a continuing journey in the field of evolution, where artificial intelligence acquires knowledge by engaging in a process of trial and error, imitating the learning methods of humans. As we approach the future, artificial intelligence is exploring

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areas such as unsupervised learning, generative adversarial networks (GANs), and quantum-inspired computing. This indicates a path where AI evolves from being a mere tool to being an intellectual partner.

#### b) *The Incorporation of Artificial Intelligence in Business*

The narrative smoothly shifts to the mutually beneficial incorporation of AI into the framework of commercial operations. The age when AI was considered a distant possibility has ended; it has now become an essential influence that shapes the strategies, operations, and innovations of organizations.

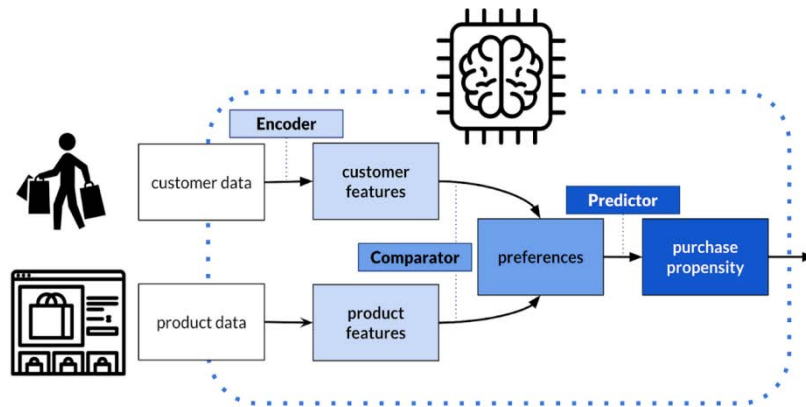
##### i. *The Revolution of Automation*

Automation serves as the forefront of incorporating AI. Businesses utilize robotic process

automation (RPA) to optimize routine activities, hence improving operational efficiency. The continuous advancement of algorithms in various fields, including as data entry and customer assistance, allows human resources to be freed up for more strategic pursuits.

##### ii. *Proficiency in Predictive Analytics*

The predictive capabilities of AI have become crucial in strategic decision-making. Enterprises utilize predictive analytics to forecast market trends, manage supply chain operations, and anticipate client preferences. This not only reduces risks but also drives organizations towards being proactive and forward-thinking entities.



##### iii. *The Cognitive Leap of Cognitive Computing in*

Cognitive computing signifies a significant advancement in the integration of artificial intelligence. It facilitates the comprehension, acquisition, and interaction of systems in a manner that resembles human language. In the corporate context, this refers to the utilization of sophisticated customer relationship management (CRM) systems that possess the ability to understand and address consumer inquiries with a level of acumen similar to that of a human, hence improving user experiences.

##### iv. *Transforming Industries with Artificial Intelligence*

In addition to its impact on individual applications, artificial intelligence fundamentally transforms entire industries. AI is revolutionizing various domains, ranging from healthcare diagnostics to financial risk assessments. The integration encompasses smart manufacturing, where artificial intelligence coordinates production processes, and the emerging field of autonomous cars, where algorithms traverse intricate settings.

This section provides an overview of the development of AI and its integration into the complex fabric of contemporary business.

## II. ARTIFICIAL INTELLIGENCE (AI) IS BEING INCREASINGLY UTILIZED IN SEVERAL ASPECTS OF BUSINESS OPERATIONS

This section explores the various applications of Artificial Intelligence (AI) in corporate operations, highlighting the innovative ways it has improved efficiency, analytics, customer relations, supply chains, and decision-making processes.

#### a) *The Implementation of Automation and Enhancement of Efficiency*

##### i. *Robotic Process Automation (RPA)*

RPA is a prominent force in the automation revolution driven by AI. It frees enterprises from monotonous, rule-driven duties, allowing for more efficient procedures. RPA, or Robotic Process Automation, improves productivity, minimizes mistakes, and enables human resources to concentrate on tasks that need creativity and strategic thinking, ranging from invoice processing to data entry.

##### ii. *Intelligent Document Processing (IDP)*

IDP, an AI-driven advancement in document processing, retrieves valuable information from unorganized material. It systematically analyses extensive amounts of documents, detecting patterns and extracting pertinent information. This not only accelerates the process of making decisions based on

data, but also strengthens organizations in their ability to handle the difficulties caused by an excessive amount of information.

#### b) *Anticipatory Analysis*

##### i. *Predicting Market Trends*

Predictive analytics, a well-established component of AI applications, enables firms to forecast market trends with exceptional precision. Through the examination of past data, recognition of recurring trends, and utilization of machine learning algorithms, businesses may make well-informed choices, enhance marketing tactics, and maintain a competitive edge in rapidly changing market environments.

##### ii. *Enhancing the Efficiency of Supply Chains*

AI plays a significant role in supply chain management, utilizing predictive analytics to optimize logistics. The act of estimating demand, optimizing inventory levels, and forecasting supplier performance transitions from mere aspirations to concrete reality. The outcome is a supply chain that functions with streamlined accuracy, diminishing expenses and augmenting overall effectiveness.

#### c) *CRM (Customer Relationship Management)*

##### i. *Tailored Customer Experiences*

AI revolutionizes the field of customer relationship management, bringing about a significant change in the way it operates. Algorithms utilize data on client behaviour, preferences, and interactions in order to create tailored experiences. By incorporating artificial intelligence, CRM systems enhance customer loyalty and foster a dynamic and responsive interaction between customers and companies. This is achieved

through features such as chatbots that offer immediate assistance and predictive product recommendations.

##### ii. *Analysis of Emotional Tone*

The incorporation of sentiment analysis into CRM systems signifies a significant achievement. Artificial intelligence systems analyze client sentiments based on their interactions, reviews, and feedback. Businesses acquire valuable knowledge about client satisfaction levels, allowing them to adjust their strategy, immediately resolve problems, and cultivate a favorable brand image.

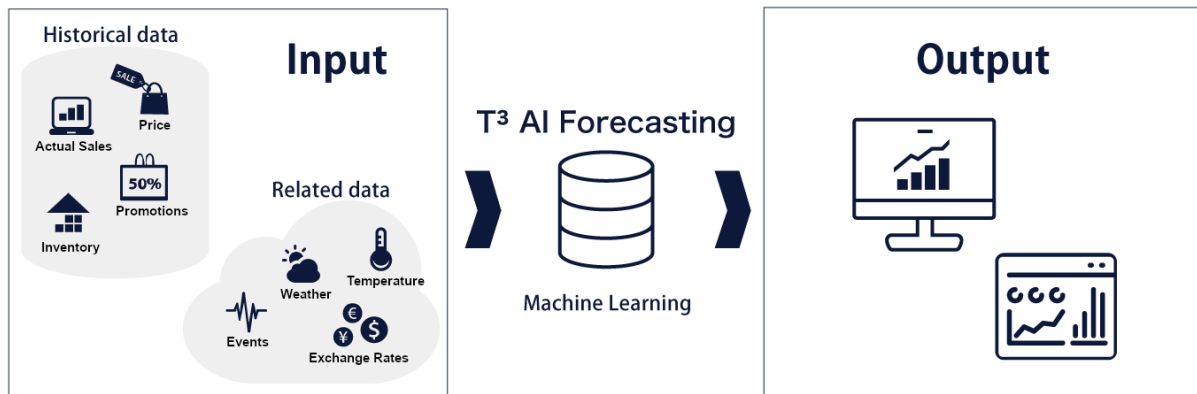
#### d) *Supply Chain Management*

##### i. *Efficient Inventory Control*

The influence of AI on supply chain management encompasses intelligent inventory management. AI algorithms utilize real-time monitoring to maintain inventory levels at their most optimal state. This not only avoids situations where there is a shortage or excess of stock, but also reduces the expenses associated with holding inventory and improves the overall ability of the supply chain to withstand disruptions.

##### ii. *Accuracy of Demand Forecasting*

The field of demand forecasting is experiencing a revival with the integration of artificial intelligence. AI-powered algorithms utilize historical data, market trends, and external factors to generate detailed demand forecasts. Businesses can use this agility to synchronize production and distribution with real market demands, resulting in waste reduction and enhanced resource allocation.



#### e) *Processes for Making Decision*

##### i. *Enhanced Decision-Making*

Artificial intelligence enhances decision-making processes by offering insights based on data analysis. Machine learning algorithms process extensive datasets, providing valuable insights for making strategic decisions. The combination of human intuition and machine precision enhances the quality and speed of decision-making in several business sectors.

##### ii. *Precision in Risk Management*

AI enhances risk management by accurately recognizing potential risks and forecasting their potential consequences. AI empowers firms with a proactive defense against uncertainties by evaluating financial risks, assessing market swings, and gauging operational vulnerabilities.

This section explores the various and significant uses of AI in the complex fabric of business processes,

demonstrating how these technologies are not only tools but also agents of transformation.

### III. EXAMPLES OF SUCCESSFUL IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE

In this part, we explore notable case studies that demonstrate the profound impact of Artificial Intelligence (AI) in many business sectors.

#### a) *The Impact of AI-Powered Recommendations on E-commerce Giants*

##### i. *Amazon's Dynamic Product Recommendations*

Amazon, the dominant force in online retail, has transformed the way customers interact with its platform through the use of artificial intelligence-powered recommendations. Amazon's recommendation engine utilizes data from purchase history, browsing behavior, and user preferences to provide personalized product suggestions. Not only does this improve user involvement, but it also greatly contributes to the platform's earnings, demonstrating the power of AI in changing the future of online shopping.

##### ii. *Netflix's Customized Content Recommendations*

Netflix utilizes artificial intelligence (AI) to produce tailored content recommendations for its consumers in the digital streaming domain. Netflix utilizes advanced algorithms to provide a personalized viewer experience by analyzing viewing history, genre

preferences, and the timing of user engagement. This not only retains consumers' engagement but also serves as an illustration of how AI might revolutionize content consumption in the entertainment sector.

#### b) *Enhancing Manufacturing Efficiency using Artificial Intelligence*

##### i. *Bosch's Implementation of Predictive Maintenance*

Bosch, a prominent participant in the manufacturing sector, utilizes artificial intelligence for the purpose of predictive maintenance. Bosch utilizes sensors and AI algorithms to proactively predict and prevent equipment breakdowns. By adopting this proactive approach, the amount of time that production is halted is minimized, the expenses associated with maintenance are decreased, and the manufacturing process operates at its highest level of efficiency.

##### ii. *Siemens' Implementation of AI-Powered Quality Control*

Siemens utilizes artificial intelligence to enhance quality control in the manufacturing process. Computer vision algorithms analyze visual data obtained from production lines in order to detect any defects or deviations that do not meet the quality standards. This not only improves the quality of the product but also simplifies the manufacturing process, demonstrating how AI can significantly impact precision and efficiency.

Sector	Company	AI Application	Impact
E-commerce	Amazon	Dynamic Product Recommendations	Enhanced user engagement and revenue
Entertainment	Netflix	Personalized Content Suggestions	Customized viewer experience
Manufacturing	Bosch	Predictive Maintenance	Reduced downtime and maintenance costs
Manufacturing	Siemens	AI-Driven Quality Control	Enhanced product quality and process efficiency
Financial Services	PayPal	Fraud Detection Algorithms	Protection against fraudulent transactions
Financial Services	HSBC	AI-Powered Risk Assessment	Expedited and accurate risk assessments

#### c) *The Role of Financial Institutions and Artificial Intelligence in Fraud Detection*

##### i. *PayPal's Algorithms for Detecting Fraud*

PayPal utilizes artificial intelligence (AI) in the financial industry to strengthen its defences against fraudulent activities. AI algorithms analyse transaction patterns, user behaviour, and other relevant data to detect potentially fraudulent transactions. The prompt analysis in real-time guarantees prompt intervention, safeguarding both the platform and its users against financial hazards.

HSBC's risk assessment system utilizes artificial intelligence technology.

HSBC utilizes artificial intelligence (AI) to assess risks, specifically in the process of evaluating loan applications. Machine learning algorithms evaluate the

creditworthiness of applicants by analysing a wide range of data points, such as credit history, spending patterns, and economic indicators. This not only expedites the decision-making process but also enhances the accuracy of risk assessments in the realm of financial services.

These case studies underscore the versatility and impact of AI applications in different sectors, showcasing how businesses can leverage these technologies to optimize operations, enhance user experiences, and fortify their positions in competitive markets.



#### IV. CHALLENGES AND ETHICAL CONSIDERATIONS

In this section, we delve into the critical challenges and ethical considerations associated with the widespread adoption of Artificial Intelligence (AI) in business operations.

##### a) Data Privacy and Security

###### i. The Balancing Act

As businesses increasingly rely on AI to analyze vast datasets, the issue of data privacy becomes paramount. The challenge lies in striking a delicate balance between harnessing the insights derived from extensive data and safeguarding the privacy rights of individuals. Stricter regulations and heightened public awareness emphasize the need for businesses to adopt robust data protection measures, ensuring the responsible and ethical use of information.

###### ii. Security Implications

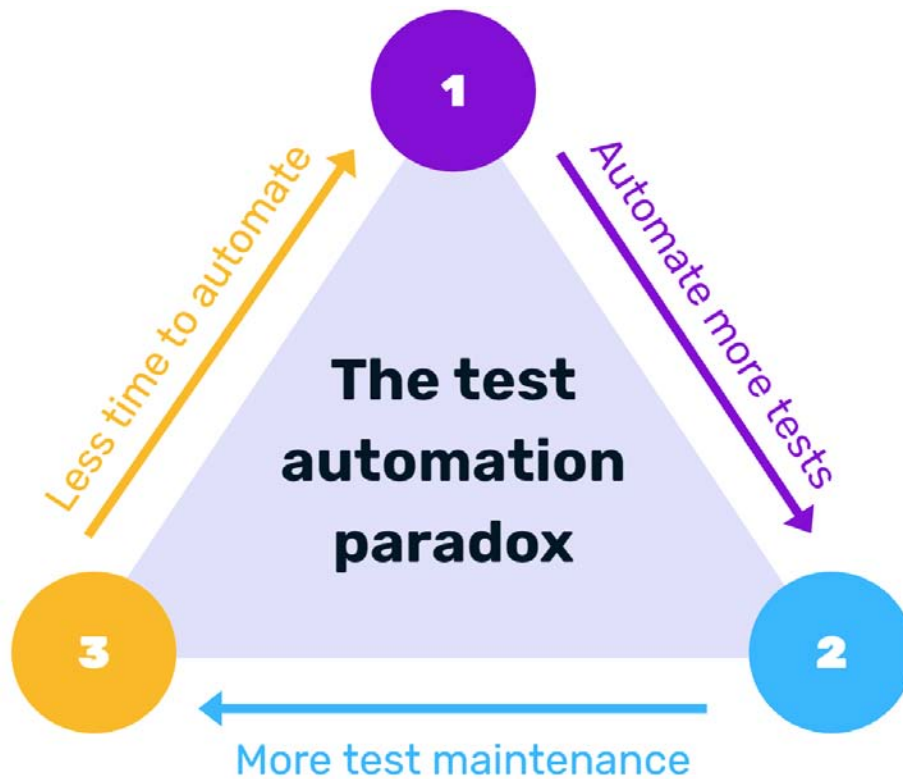
With the proliferation of AI, the vulnerability of systems to cyber threats escalates. The interconnectedness of AI systems poses security challenges, as any compromise in the data integrity or algorithmic processes can have far-reaching consequences. Businesses must proactively address these concerns by implementing advanced cybersecurity measures,

encryption protocols, and continuous monitoring to fortify their AI-driven infrastructures.

##### b) Job Displacement Concerns

###### i. The Automation Paradox

While AI promises increased efficiency and productivity, the fear of job displacement looms large. Automation, driven by AI, has the potential to replace certain repetitive tasks, leading to concerns about the future of employment in various sectors. Businesses must navigate this ethical challenge by fostering a transition that focuses on upskilling the workforce, creating new job opportunities, and ensuring a responsible approach to technological advancement that considers its broader societal impact. The Automation Paradox refers to the phenomenon where as automated systems become more efficient, the need and importance for human intervention increases. This concept highlights the critical role of human operators in overseeing and correcting errors that may arise in automated systems. Despite the aim of automation to reduce human errors and speed up processes, the paradox emphasizes that humans become more valuable in ensuring the proper functioning of automated systems.



###### ii. Reskilling Initiatives

Addressing job displacement concerns involves proactive reskilling initiatives. Companies can play a pivotal role in mitigating this challenge by investing in training programs that equip employees with the skills

needed for the evolving job market. Collaborative efforts between governments, educational institutions, and businesses are essential to create a resilient workforce capable of thriving in an AI-driven era.

c) *Bias in AI Algorithms*i. *Unveiling Algorithmic Bias*

AI algorithms, when trained on biased datasets, can perpetuate and even exacerbate societal biases. This becomes particularly evident in sectors like recruitment, finance, and criminal justice. Recognizing and rectifying algorithmic bias is crucial for fostering inclusivity and fairness. Businesses must prioritize diversity in their data collection processes, implement transparency in algorithmic decision-making, and continuously audit and refine their models to minimize bias.

ii. *Ethical AI Design*

To address bias, businesses should adopt an ethical approach to AI design. This involves rigorous testing for bias, constant monitoring of algorithmic outputs, and integrating ethical considerations into the development lifecycle. By adhering to ethical AI principles, businesses not only mitigate the risks of bias but also contribute to the creation of more equitable and just technological systems.

This section highlights the imperative for businesses to grapple with the complex challenges and ethical considerations inherent in the integration of AI into their operations. Addressing these issues is crucial for ensuring that the benefits of AI are realized responsibly and ethically.

## V. FUTURE TRENDS AND INNOVATIONS

In this section, we explore the emerging trends and innovations that are poised to shape the future landscape of Artificial Intelligence (AI) in business operations.

a) *AI and Quantum Computing*i. *Quantum Leap in Computing*

The synergy between AI and quantum computing heralds a transformative era in computational capabilities. Quantum computing's inherent capacity for parallel processing unlocks unparalleled potential for handling complex AI algorithms. This symbiotic relationship is expected to revolutionize optimization problems, cryptography, and machine learning tasks, paving the way for advancements that were previously deemed computationally infeasible.

ii. *Quantum Supremacy and AI Advancements*

As quantum computing achieves milestones like quantum supremacy, the applications for AI expand exponentially. Quantum algorithms promise to exponentially speed up certain AI computations, propelling breakthroughs in areas such as drug discovery, optimization of logistical operations, and solving intricate machine learning challenges. The convergence of AI and quantum computing is not just an evolution; it is a paradigm shift in computational capabilities.

b) *Explainable AI (XAI) for Transparent Decision-Making*i. *The Imperative of Transparency*

The advent of complex AI models has underscored the need for transparency in decision-making processes. Explainable AI (XAI) addresses this imperative by providing interpretable insights into how AI systems arrive at specific conclusions. Businesses increasingly recognize the importance of transparent AI, particularly in sectors where accountability and comprehension of decisions are paramount.

ii. *Building Trust through Explainability*

XAI enhances the trustworthiness of AI systems. By offering clear explanations for decisions, XAI not only ensures compliance with regulatory frameworks but also fosters user trust. As businesses deploy AI in critical areas like finance, healthcare, and autonomous systems, the ability to understand and explain AI-driven decisions becomes a foundational element in the acceptance and ethical application of these technologies.

c) *Integration of AI in Small and Medium-sized Enterprises (SMEs)*i. *Democratizing AI Access*

Traditionally, large enterprises with substantial resources have led to AI adoption. However, the future sees a democratization of AI access, particularly for Small and Medium-sized Enterprises (SMEs). As AI technologies become more accessible and tailored solutions emerge, SMEs can harness the power of AI to enhance operational efficiency, customer engagement, and overall competitiveness.

ii. *Customized Solutions for SMEs*

Innovations in AI frameworks and cloud-based solutions enable SMEs to implement customized AI applications that align with their specific needs. From streamlining supply chain processes to automating customer interactions, AI empowers SMEs to make data-driven decisions and compete effectively in dynamic markets. The integration of AI in SMEs represents a democratization of innovation, driving economic growth and fostering a more inclusive technological landscape.

This section illuminates the trajectory of AI's future, showcasing the transformative potential of quantum computing, the pivotal role of explainable AI in transparent decision-making, and the democratization of AI access for SMEs. As businesses navigate this dynamic landscape, these trends will undoubtedly shape the next chapter in the evolution of AI in business operations.

## VI. IMPLICATIONS FOR BUSINESS LEADERS

In this section, we delve into the practical implications that the integration of Artificial Intelligence (AI) holds for business leaders, addressing key

strategies for implementation and the crucial aspect of workforce preparation.

a) *Strategies for Implementing AI in Business Operations*

i. *Aligning AI with Business Objectives*

Successful AI integration requires a strategic alignment with overarching business objectives. Leaders must delineate clear goals and identify areas where AI can deliver maximum impact. Whether optimizing internal processes, enhancing customer experiences, or improving decision-making, a well-defined strategy ensures that AI initiatives contribute directly to the organization's success.

ii. *Incremental Implementation and Scalability*

Rather than pursuing a comprehensive AI overhaul, leaders are advised to adopt an incremental implementation approach. Beginning with pilot projects allows for iterative testing, refinement, and minimization of risks. Scalability considerations should be an integral part of the strategy, ensuring that successful AI implementations can be expanded across different business functions.

iii. *Collaboration and Ecosystem Integration*

AI implementation extends beyond technology; it involves fostering collaboration and integrating AI within the broader business ecosystem. Business leaders should explore partnerships with AI vendors, industry consortia, and research institutions. This collaborative approach not only facilitates knowledge exchange but also enhances the collective intelligence available for optimizing AI applications.

b) *Training the Workforce for an AI-Driven Future*

i. *Reskilling and Upskilling Initiatives*

The advent of AI necessitates a paradigm shift in workforce skills. Business leaders must invest in reskilling and upskilling programs to empower employees with the competencies required in an AI-driven environment. These initiatives should address not only technical skills related to AI but also soft skills such as adaptability, critical thinking, and creativity.

ii. *Creating a Culture of Continuous Learning*

Establishing a culture of continuous learning is paramount for preparing the workforce for an AI-driven future. Leaders should encourage employees to embrace learning as an ongoing process, fostering a mindset that values adaptability and embraces the acquisition of new skills. By institutionalizing a culture of continuous learning, organizations position themselves to navigate the evolving landscape of AI technologies.

iii. *Ethical and Responsible AI Training*

As AI systems become integral to business operations, leaders must prioritize ethical considerations. Workforce training should encompass ethical AI practices, emphasizing transparency, fairness, and

accountability. This ensures that employees understand the ethical dimensions of AI applications and contribute to responsible AI implementation within the organization.

This section outlines actionable strategies for business leaders to navigate the implementation of AI in their operations, emphasizing strategic alignment, incremental adoption, and collaborative approaches. Additionally, it underscores the imperative of workforce preparation through reskilling, upskilling, and the cultivation of a culture of continuous learning, with a specific focus on ethical and responsible AI practices.

## VII. CONCLUSION

As we draw the curtains on our exploration of the transformative synergy between Artificial Intelligence (AI) and business operations, this section offers a recapitulation of AI's profound impact and ventures into the uncharted territories that lie ahead.

a) *Recapitulation of AI's Impact on Business Operations*

Throughout this discourse, we've traced the evolution of AI, witnessed its integration into various facets of business operations, and examined case studies illustrating its successes. From automation and efficiency gains to predictive analytics, customer relationship management, supply chain optimization, and enhanced decision-making processes, AI emerges as a catalyst for unprecedented advancements.

The case studies presented to underscore the tangible benefits experienced by diverse industries, showcasing how E-commerce giants leverage AI-powered recommendations, manufacturing undergoes optimization, and financial institutions fortify defences against fraud. These success stories affirm that AI is not a theoretical concept but a practical tool reshaping the landscape of business operations.

b) *Looking Forward: The Uncharted Territories of AI Integration*

As we peer into the future, the integration of AI in business operations promises to venture into uncharted territories. Emerging trends such as the intersection of AI and quantum computing, the pursuit of Explainable AI (XAI) for transparent decision-making, and the democratization of AI in Small and Medium-sized Enterprises (SMEs) beckon business leaders to stay vigilant and adaptive.

The ethical considerations surrounding AI challenges related to data privacy and security, job displacement concerns, and the imperative for unbiased AI algorithms highlight the need for continuous dialogue and proactive measures. Business leaders must navigate these challenges with foresight, balancing innovation with responsibility.

In conclusion, the fusion of AI and business operations is not merely a technological convergence; it is a transformative journey that demands strategic

foresight, ethical considerations, and a commitment to cultivating a workforce prepared for the future. As we step into the uncharted territories of AI integration, the lessons gleaned from the past and present serve as guiding beacons for businesses embarking on this transformative expedition

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# Audit Quality Dynamics in the Mauritian Private Sector: Unraveling Influential Factors through Quantitative Analysis

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**Abstract-** This research delves into the factors influencing the quality of external audits for private companies in Mauritius. Given the expanding volume of financial information and the subsequent need for rigorous audit processes, evaluating audit quality has become a contemporary concern. Drawing from prior research, key indicators such as audit complexity, time budget pressure, audit tenure, auditor's experience, audit fees, auditor's independence, professional skepticism, audit risks, and auditor rotation are recognized as pivotal elements affecting external audit quality. Utilizing a quantitative survey method, data is gathered from professionals, including licensed auditors, audit staff, audit managers, and audit partners in Mauritius through random sampling techniques. Demographic factors such as age, gender, and education are scrutinized to enhance the understanding of the topic. The Mann Whitney U test, One-way Anova test, and Chi-square test are employed to test the hypotheses developed in the research. The study's findings indicate that time budget pressure, auditor's experience, auditor's independence, audit risks, and auditor rotation predominantly influence the external audit quality of private companies in Mauritius.

**Keywords:** *audit indicators, quantitative survey, auditor independence, audit software, mauritius.*

**GJMBR-D Classification:** *LCC Code: HF5601-5689*



AUDIT QUALITY DYNAMICS IN THE MAURITIAN PRIVATE SECTOR UNRAVELING INFLUENTIAL FACTORS THROUGH QUANTITATIVE ANALYSIS

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# Audit Quality Dynamics in the Mauritian Private Sector: Unraveling Influential Factors through Quantitative Analysis

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**Abstract-** This research delves into the factors influencing the quality of external audits for private companies in Mauritius. Given the expanding volume of financial information and the subsequent need for rigorous audit processes, evaluating audit quality has become a contemporary concern. Drawing from prior research, key indicators such as audit complexity, time budget pressure, audit tenure, auditor's experience, audit fees, auditor's independence, professional skepticism, audit risks, and auditor rotation are recognized as pivotal elements affecting external audit quality. Utilizing a quantitative survey method, data is gathered from professionals, including licensed auditors, audit staff, audit managers, and audit partners in Mauritius through random sampling techniques. Demographic factors such as age, gender, and education are scrutinized to enhance the understanding of the topic. The Mann Whitney U test, One-way Anova test, and Chi-square test are employed to test the hypotheses developed in the research. The study's findings indicate that time budget pressure, auditor's experience, auditor's independence, audit risks, and auditor rotation predominantly influence the external audit quality of private companies in Mauritius. Recommendations are provided to enhance external audit quality, emphasizing the need for audit firms in Mauritius to invest in audit software and ensure adequate training for employees. Additionally, the study suggests revisiting the audit partner rotation requirement, advocating for a criterion of less than 5 years, to foster increased independence between external auditors and clients. The study concludes by acknowledging certain limitations that have been discussed.

**Keywords:** audit indicators, quantitative survey, auditor independence, audit software, mauritius.

## 1. INTRODUCTION

Auditing is the procedure of reviewing the financial data along with non-financial data included in a financial statement whether they portray a reasonable view of economical operations by complying together with the International Auditing and Assurance Standards Board (IAASB). The audit quality performs a crucial function in the handling of the financial reports through the prospective investors on top as well as other users who need reliable and credible financial information. According to Alsmairat et al. (2018), in emerging nations, audit quality is among the factors which impact firm value. In reporting, information gap may occur resulting from dissimilar interests amongst management along with handlers of the financial

statements in private companies. As such, the role of third parties is crucial to scrutinize the financial reports to diminish information asymmetry that occurs between users and managers.

Several people mystify auditors with individuals who detect fraud, but auditors have nothing to do with fraud detection entirely. Kronenberger and Pietzsch (2017) believed auditors are a vocation which runs based on independence, trust, along with professionalism. Auditors just intend to make sure that organization's financial statements have valid and fair representation of its actual position in accord with the financial reporting framework and appropriate regulations.

Behn et al. (2008) asserted that high-level audit quality might enhance the consistency of financial report data, besides this is helpful to aid stockholders and investors in establishing the corporation's projected value beyond accurately. Inadequate audit quality is expected to delude operators of accounting information as well as cause incorrect decision making. Hence, it is crucial to acquire knowledgeable grasps into those crucial factors that might affect quality of external auditing.

In Mauritius, auditing is stipulated in the Companies Act 2001 and audited accounts are required by the Registrar of Companies in Mauritius if the annual turnover of the company is above MUR 100 million recently as per new budget 2022-2023 of Mauritius, before the new budget the limit was above MUR 50 million when a company was liable to auditing. The auditing ought to be done in accord with International Standards on Auditing (ISA) as announced by the IAASB. To be a qualified external auditor in Mauritius as per Financial Reporting Act (FRA) 2004, a candidate must be registered as a Public Accountant with Mauritius Institute of Professional Accountants (MIPA) and hold a practising certificate from Financial Reporting Council (FRC). Regulatory bodies like MIPA and FRC supervise and regulate auditors so as they are in line with all regulations they are required to follow in such a way that they maintain a high standard in their audit works. In Mauritius, the existing partner rotation criteria for audit firms are modified by a five-year audit firm rotation requirement.

Due to the pressure of litigation as well as several corporate missteps, the most significant issue confronting the auditing profession currently is the quality of external audits. Iskandar et al. (2010) established compromise on how external audit quality must be evaluated but has not been accomplished. Audit scandals such as poor service quality, and high audit fees, discourage firms to appoint external auditors. It is therefore essential to acquire well-informed insights that influence the audit quality. Auditee whether they are private owned or government, all need a high standard audit quality.

Findings on external audit quality remain resolute in established economies and only some findings have been conducted in emerging economies. Akin findings are scant in tiny island economies alike Mauritius. This research attempts to ease this aperture.

*The Objectives of the Research are to:*

1. Assess the Influence of Auditor Educational Background and Experience on the Quality of External Audits for Private Companies in Mauritius.
2. Examine Professionals' Perspectives on Factors Affecting External Audit Quality in the Mauritian Context.
3. Propose Measures to Enhance External Audit Quality and Practices in Mauritius.

The significance of audit quality confidence may lead to useful motives such as upgrading trust and confidence of shareowners and the public in the audited financial reports according to Hussein and Hanefah (2013) and Hosseinniakani et al. (2014). This analysis might encourage auditors to provide clients with audit reporting of the highest quality. This will benefit different users of financial information alike as potential investors, shareholders, as well as other stakeholders of organizations. They will gain an understanding of how external auditing is affected by some factors in private companies of Mauritius.

## II. REVIEW OF LITERATURE

### a) *Agency Theory*

The agency theory is a well-founded economic theory of accountability, which facilitates explanation on the development of audit quality. Additionally, scholars like Jensen and Meckling (1976), Watts and Zimmerman (1986) consider the demand for external auditing is at the heart of the agency relationship and scrutinise this recourse to external auditing as a means of constraining the possibilities of accounting manipulation by managers. As a retort to the agency problem, the requirement for external auditors has intensified, to certify accountability and lessen the possibility of fraud, error, material misstatement, as well as management manipulation (Chandler et al., 1993). External auditors who oversee the audit system are expected to perform independently and should be forbidden from take up

sides with any of the parties, specifically the principal or agent. The evidence held in the external auditor's audit account will be utilized through the principal in establishing the base for evaluations of brief and deep-rooted concerns upon possession of the organisation.

### b) *Stakeholder Theory*

According to Freeman (1984), stakeholder theory is a principle which reveals numerous parties that are the focus of corporate obligation in relative to their endeavours. If company management has interested that struggle with the interests of investors as firm stakeholders, it is required to come up with an autonomous party named an external auditor who acts as a tierce party to conquer as well as synchronize conflicts which ensue among the dual events. Stakeholders' theory as well purveys with audit quality. External auditors ought to sustain audit quality to retain upstanding, independence and objectivity in revealing firm data to comprehend the value of audit statements as the accountability of investors. The audit report comprises an external auditor's opinion as well that aid stakeholders in having an insight on the quality of the organization's value.

### c) *Empirical Review*

#### i. *Factors Affecting the External Audit Quality*

The existing frame suggests a vast range of components which affect the external audit quality, taking into deliberation perspectives from every set implicated in the position of external auditing such as:

#### 1. *Audit Complexity*

Task complexity is expressed as a perception of an entity of a mission which is triggered by an individual's opinion of a mission owing to narrow capacities and reminiscence, alike as the skill to mingle difficulties that decision makers incur (Jamilah et al., 2007). In line with Jiambalvo (1982), 'Audit complexity relies on insights of the problem of the audit task. Certain audit assignments are deemed a project with elevated complexity and difficulty, while others suppose it a straightforward task. Putri et al. (2021) proved that audit quality is influenced by audit complexity. However, according to Susanto et al. (2020), task complexity has certainly no significant effect on audit quality. Audit complexity is a gauge of whether transactions are intricate, or else the dimension of firm records conducted for auditing (Mulyadi 2014).

*H1: Audit complexity affects the external audit quality.*

#### 2. *Time Budget Pressure*

The factor affecting audit quality is time budget pressure that is the extent of time accessible for auditors to conduct out audit appointments (Margheim and Pattison, 2005). Time budget pressure might be a portion of the proposal employed by assessors who would determine regulations in hours for every portion of the audit. Fleming (1980) asserts the time budget

pressure gauge comprises of creating plans and time efficiency. According to Rusyanti (2010), auditors who get very minimal assignment time can cause harm to their users, where auditors will act by not applying applicable standards and codes of ethics thus audit quality will degenerate. As per Sososutikno (2003), 'time budget pressure could be a condition that shows auditors are required to form efficiency with the time budget that has been prepared or shape a discussion of time budgets which is very tight and rigid' was set or there are stint limitations during an actual constricted budget. Time budget pressure has optimistic impact on the audit quality as per Dwimilten and Riduwan (2015).

*H2: Time budget pressure affects the external audit quality.*

### 3. Audit Tenure

The tenure of an external audit firm in a corporate can have a sway on the precision of its audit as Flint (1988) considers that while auditors work in an organization for a lengthy time, auditors may set up a particular relationship with people in the organization and mislay their autonomy. A long-term relationship among external auditors and its clients possibly generates vicinity amongst the firm's colleagues and clients, which might hinder auditor independence then diminish audit quality (AlThuneibat et al., 2011). Nugrahanti and Darsono, (2014) asserted in their research that within a brief tenure in which an auditor has just contracted with a current client, additional time is required for the auditor to be ready to recognize the client and therefore the business environment. Monroe and Hossain (2013) imply the audit's lengthy tenure is certainly associated to the further excellent quality of audit. Audit failures are apt to be elevated within the preliminary times of the auditor-client association since the recent auditor develops newly awareness of the client's processes (Arel et al., 2005). Conversely, there might be optimum point of audit tenure as an alternative of a straightforward decrease or increase result (Fitriany et al., 2016).

*H3: Audit tenure affects the external audit quality.*

### 4. Auditor's Experience

Experience over time alters the vast 'reminiscence edifices' certainly, and outcomes in a superior degree of decision and conviction skills (Cahan & Sun, 2015). Ye et al. (2004) demonstrate lengthier experience of auditors are fewer prone to get audit failures. The ability to obtain information and knowledge are relevant to auditing so that the audit can be carried out completely, correctly, and accurately is known as an auditor's professional expertise (Carolita & Rahardjo, 2012). The higher the audit quality, the greater the proficiency level (Sukriah et al., 2009). Variables of experience along with abilities are assumed to correspond to the ability variable, have a dismissive connection with the length of the implementation and

achievement of auditing procedures (Rafiee et al., 2013). O'Keefe et al. (1994) put forward the close relationship between knowledge and capabilities with compliance with GAAPs. The experience of auditors in prominent audits of financial reports comes from the time allotment and the extent of tasks that have been finished by the auditors (Nurjanah & Kartika, 2016). Ningrum and Wedari's (2017) assert the experience of auditors has a positive and significant effect on audit quality. The level of experience of the auditor has a substantial constructive impact on audit quality as per Hanjani, A. (2014).

*H4: Auditor's experience affects the external audit quality.*

### 5. Audit Fees

Al-Matarinah (2003) points out the amounts the auditor alleges while carrying out an audit of a firm's accounts are related to the auditor's fees. Kinney and Libby, (2002) urged the menace to auditor autonomy might be as robust as the audit cost is huge. Hay (2017) stated one of the extremely critical factors affecting the quality of the audit remains the auditor's fees if the charges are extremely minimal this might be intimidating the particular interest on qualified competency along with the required support. Hallak & Silva (2012) claim audit fees given to external auditors in lieu of their carrying out their audit tasks serve to measure the scope of the auditing process. Increased fees can cause audit staff to work twice as hard to increase the audit quality (Dechow & Dichev, 2002). Rohman and Kurniasih (2014) identified that the audit fee has a positive effect on audit quality. There is an insignificant relationship between audit quality and audit fees stickiness (Salehi et al., 2019).

*H5: Audit fees affects the external audit quality.*

### 6. Auditor's Independence

The financial communal desires to be persuaded on the external auditor's independence, the actual presence of the auditing profession differs on this belief, if there is hesitation on the independence of external auditors, the opinions would not have worth, plus the subsequent are not desired for the facilities of auditors, besides to the financial communal sureness in the independence of auditors, they should evade altogether dealings and situations that demand hooked on enquiry the independence (Nazmi & Alazab, 2012). Currently, IFAC (2016) necessitates an auditor to be independent in relation to its customer equally in fact as well as in appearance. Hastuti, et al. (2017) uncovered that independence had considerable and preferential impact on the audit quality. Independence is a tendency where a fair-minded auditor must consistently be kept up with. The fair-mindedness revealed by the auditor once doing his obligations implies that the auditor is straightforward and enlightened from any impact, so the audit report could be reliable (Zam & Rahayu, 2015).





*H6: Independence affects the external audit quality.*

#### 7. Professional Scepticism

Suardani et al., (2019) indicated professionalism as a factor that affects the quality of the audit including executing the duties through each thoroughness subsequent professional guidelines and recognized professionalism while delivering professional services. Professional scepticism is extremely associated with audit quality (Chen et al., 2009). Professional scepticism is merely defined as the means to reject the viewpoint of client and their concerned credentials; as a substitute, putting one's professional judgment to assess as well as comprehend the concealed truth behind slightly doubtful transactions and activities likewise (Johnson, 2016). Professional expertise is one crucial input element which affects audit quality (Mednick, 1990). Still, professionalism has no relation to audit quality according to Futri and Juliarsa (2014).

*H7: Professional scepticism affects the external audit quality.*

#### 8. Audit Risks

Cindori (2018) clarified the audit risks such as "the possibility of expressing an incorrect opinion on the financial statements scrutinized, because of the auditor's failure to discover the material errors which may exist in those statements where he expresses his opinion". The audit risks were expounded as the external auditor's articulating a suitable judgment on the financial reports of the firm, besides these financial reports are essentially warped, or providing an inapt belief when the financial reports are free of material distortion (Muir, 2018). The risk in auditing implies the auditor receives a certain degree of uncertainty in the conduct of the audit (Mulyadi, 2002). Commerford et al. (2018) specifies the threat of an audit is that 'the auditor provides an inaccurate opinion' while the financial reports comprise serious inaccuracies, and the audit risk could be perceived as of two distinct viewpoints (Kesimli, 2019).

*H8: Audit risks affect the external audit quality.*

#### 9. Auditor Rotation

Auditor rotation is essential to make sure that client conforms to the law along with sustain warm tactics to the audit procedure (Teh et al., 2016). Dopuch et al. (2001) perform an experimentation and presume that auditors are less inclined to publish biased reports beneath rotation requirements, consequently compulsory audit firm rotation boosts auditor autonomy. Stefaniak et al. (2009) argue previous research gets not enough proof that compulsory audit firm rotation boosts audit quality. Jennings et al., (2006) assets that judges experience improved apparent autonomy owing to compulsory audit firm rotation, along with much greater comparative to only an audit partner cycle. Kurniasih and Rohman (2014) uncover auditor rotation can impact

audit quality. With obligatory audit firm rotation, the auditors will much less collaborate in mediation tactics and hence the results are more beneficial for the auditor than the client (Wang and Tuttle, 2009).

*H9: Auditor rotation affects the external audit quality.*

#### 10. Educational background of external auditor affecting audit quality

Human assets signify a professional's particular attributes, comprising of skills, knowledge, education, along with experience (Beck et al., 2018). The educational environment indicates whether a person achieved systematic and troublesolving skills (Beck et al., 2018). Declarative knowledge is obtained through conventional education. Both financiers and audit professionals concur that training, experience and education perform an essential part in audit operation (Christensen et al., 2016). Also, Ye et al. (2004) provide a more individualized proxy for the academic backdrop, bearing in mind not only the educational level but also whether the auditor graduated from a prestigious university with a major in accounting. Though, Burke et al. (2018) asserts the education backdrop of audit partner does not influence the audit quality. D'Aveni (1996) contends that the educational backdrop does rise its recognition and significance over the years. The auditor's educational backdrop is appropriate to an audit organisation (Bröcheler et al., 2004). Subhan (2012) contends educational background has significant effect on work quality delivered.

*Hypothesis 10: Educational background affects the external audit quality.*

### III. RESEARCH METHODOLOGY

Data was gathered using a quantitative technique. Self-completed surveys are suitable for learning how professionals evaluate external audit quality because they allow respondents to offer responses freely and anonymously that represent their expectations and opinions.

The target respondents for the survey are users who have experience in auditing; they may include the licensed auditors, audit staffs, audit supervisor, audit managers and the ones in accounting field from different type and size of private organizations in Mauritius where these professionals are required to be employed. The professional of dissimilar educational background, experience and gender were targeted.

A simple random sampling method has been utilized for the intent of this research as it is impractical to include every individual in such a short length of time. Straightforward random sampling is a kind of probability sampling in which the researcher randomly picks a subset of participants from a populace, and it is one of the simplest form of data collection. Each member of the populace has an equivalent opportunity of being selected. It is supposed to be an unbiased

representation of the population, and this is crucial for drawing assumptions on a study even though sample selection bias can occur. As a result, it was perfect to choose a sample of people in audit field to fill out my questionnaire, even if they are not typical of the total population but are readily available.

An essential part of any empirical investigation requiring assumptions about a population built on a sample is the computation of sample size. In essence, sample sizes are used to represent portions of a population that have been selected for a survey. Henceforward, grounded on a confidence level of 95%, a margin of error of 5%, a populace quotient of 50% besides a populace of around 111 audit firms as per FRC and 220 licensed auditors registered with FRC in Mauritius, a sample size of 179 responses from professionals should be achieved as shown in table 1 below. Approximately 331 questionnaires will be sent to concern respondents such as the licensed auditors, audit managers, audit supervisors, audit staffs of the audit firms sampled in Mauritius. The sample size was analysed using an available sample size calculator by Raosoft, Inc.

*Table 1: Sampling Size*

Margin of error	5%
Confidence level	95%
Population size	331
Response distribution	50%
Recommended Sample Size	179

Data collection is a critical aspect of any kind of research analysis. This research is centred on a crucial data collection where raw records are compiled precisely from the respondents. Primary data is data which is collected using methods such as surveys, interviews, or experiments. This sort of data gathering tool is cost effective and can be broadly dispatch to huge quantity of respondents at comparable point.

The tool utilized for this study is an online survey given that the study is a quantitative data collection technique. A questionnaire is a survey process containing a collection of questions for the intent of assembling information from respondents. Indeed, the online questionnaire will be used to carry out the research among the target population. The online questionnaire was done in Google form, and it was shared through email address contacts of the professionals in auditing and social media such as WhatsApp via a link. This was done to reach the maximum number of professionals and to collect data more rapidly. Constructs and questions of the survey questionnaire is from existing literature of auditing and audit quality.

The survey comprises of closed-ended and open-ended questions. The questionnaire entails of an aggregate of 24 questions and was split into three parts explicitly part A, B and C:

- Part A contained 6 questions and refers to the demographic attributes of the respondents such as gender, age, education, experience, along with job position. Both a nominal and ordinal scale are used to evaluate these questions.
- Part B encompasses of 6 questions which investigated at the general knowledge of auditing and audit quality. Questions regarding type of expertise in auditing, audit quality based on audit sampling, the audit firm rotation criteria and if they are to be amended are put out. These questions partake a nominal scale measurement. In supplement, there were certain questions that demand to be responded by those who have experience in auditing.
- For the part C, the outstanding 12 questions looked at the factors affecting the external audit quality which is the primary intent of the study. A list of details concerning the factors are provided and they have a scale depth of a 5-point weighted Likert scale ranging from (1) strongly disagree, (2) disagree, (3) neutral, (4) agree and lastly, (5) strongly agree. The majority of these ten questions have an ordinal scale dimension. The last two questions are open-ended questions on other factors which may affect the external audit quality in Mauritius as well as recommendations to improve the external audit quality in Mauritius.

For the research intention the Statistical Package for Social Science (SPSS) was utilized to code the information and to analyse the data efficiently and effectively. The data was consequently organised and managed to obtain the significant results. The presentation of the result has been illustrated in cross tabulation, pie chart, and bar charts to summarise and clarify the features.

Ten questionnaires were allocated to the multi-level participants consisting of some licensed auditors and audit professionals in different organisations to do the testing. Feedbacks collected from the respondents were taken into concern such as minor errors in phrasings. After making a few changes to the survey, it was authenticated before the concluding questionnaire was distributed to the survey's participants.

The Cronbach Alpha is utilized to discover out the consistency of the 36 constructs for advance test. According to the table beneath, variable usually must have a highlevel validity of more than 0.7 and have a coefficient of 0.5 and near 0.6. The value of the Cronbach's Alpha is 0.662 as displayed in the table 1 below and thus, it demonstrates an acceptable internal consistency.

*Table 2:* Reliability Test

Cronbach's Alpha	No. of items
0.662	36

High ethical standards are necessary when conducting survey. The responses and identity of the participants will be maintained in full confidentiality and will be treated anonymously. The entire survey will be performed in an environment of mutual and voluntary participation. All the collected data will be used for the academic purpose of this project only.

As an e-survey was performed, the main restraint was the aimed populace may not be fascinated or do not get enough time to complete the form. This could influence the outcome of the study. Bias responses may possibly be realized as the random sampling was utilized. Given that the sample size was 179, it was chaotic to upkeep a trail of the responses.

The sample mass may not replicate the whole targeted population and not everyone may approve to fill-in the surveys, so the sample size might decline, leading to less accurate data finding.

#### IV. DATA FINDING AND DISCUSSIONS

While analysing the study, it was crucial to identify the response rate of the analysis. Google Form was used to conduct the survey online. The targeted and calculated sample size of the study was 179 individuals from different organisation. While the overall response rate was 192 on 331 questionnaires sent representing a percentage of 58% which is acceptable for further analysis.

The first part of the perusal process starts with the respondent profile and having an insight of their background.

*Table 3:* Demographic Profile

	Frequency	Percentage (%)
<b><u>Gender</u></b>		
Male	87	45.3%
Female	105	54.7%
Total	192	100.0%
<b><u>Age Group</u></b>		
18 - 25	58	30.2%
26 - 35	77	40.1%
36 - 55	39	20.3%
Above 55 years	18	9.4%
Total	192	100.0%

	Frequency	Percentage (%)
<u>Education level</u>		
Higher School Certificate	27	14.1%
Bachelor's Degree	94	49.0%
Master's Degree	18	9.4%
Other	53	27.6%
Total	192	100.0%
<u>Experience in auditing practice</u>		
Have experience	178	92.7%
Have no experience	14	7.3%
Total	192	100.0%
<u>Years of experience in auditing practice</u>		
Less than 5 years	84	43.8%
5 – 10 years	41	21.4%
11 – 20 years	34	17.7%
21 – 35 years	15	7.8%
Above 35 years	5	2.6%
Total	179	93.2%
Missing	13	6.8%
Total	192	100.0%
<u>Job position in current organisation</u>		
Junior Auditor	34	17.7%
Auditor	41	21.4%
Senior Auditor	25	13.0%
Audit Manager	14	7.3%
Accountant / Assistant Accountant	15	7.8%
Other	31	16.1%
Audit/Assistant Associate	10	5.2%
Audit Partner	22	11.5%
Total	192	100.0%

○ *Gender*

Drew on the 192 responses received, 54.7% were females and 45.3% were males as indicated in the table 1.

○ *Age Group*

Majority of respondents representing 40.1% are in group age 26-35, followed by 30.2% for group 18-25. Likewise, 20.3% belong to the group age 36-55. Only

9.4% of the respondents were people above 55 years old.

○ *Education Level*

Mass of the respondents representing a percentage of 49.0% have bachelor's degrees while 27.6% have pursued other studies such as ACCA. 14.1% of the respondents hold a high school certificate while the remaining 9.4% hold a master's degree. This



implies that most of the respondents in the survey have pursued tertiary education.

● *Experience in Auditing Practice*

As per above table, it can be assumed that 92.7% of the respondents have experience in auditing practice while the remaining 7.3% have no experience in auditing.

● *Years of Experience in Auditing Practice*

Most of the respondents have fewer than five years of practice in auditing, representing a percentage of 43.8% while 21.4% have 5 to 10 years of experience and 17.7% have 11 to 20 years of experience. 7.8% have 21 to 35 years of experience and lastly the remaining 2.6% are the ones who have above 35 years of experience.

● *Job Position in Current Organisation*

Majority of the respondents are employed as Auditors in their current organisation, representing 21.4%, while 17.7% are Junior Auditors, 16.1% have other positions in their current organisation. 13.0% are Senior Auditors, 11.5% are Audit Partners, 7.8% are Accountants/Assistant Accountant, 7.3% are Audit Managers and the remaining 5.2% are Audit/Assistant Associates.

The second section of the survey is basically on general information that respondents gave about auditing and audit quality.

*Table 4:* General information on auditing and audit quality

	Frequency	Percentage (%)
<u>Type of audit</u>		
Internal	28	14.6%
External	125	65.1%
Other	17	8.9%
Both Internal and External audit	22	11.5%
Total	192	100.0%
<u>Top 5 firm reduce fraudulent practices</u>		
Agree	121	63.0%
Disagree	71	37.0%
Total	192	100.0%
<u>Audit sampling reduce audit quality</u>		
Agree	145	75.5%
Disagree	47	24.5%
Total	192	100.0%
<u>Audit firm rotation improve audit quality</u>		
Agree	182	94.8%
Disagree	10	5.2%
Total	192	100.0%
<u>Audit partner rotation criteria to change</u>		
Yes	151	78.6%
No	41	21.4%
Total	192	100.0%
<u>Years of Audit partner rotation criteria</u>		
Less than 5 years	123	64.1%
5 to 10 years	28	14.6%
More than 10 years	0	0%
Missing	41	21.4%
Total	192	100.0%

● *Type of Audit Expertise*

Majority of the respondents have expertise in external auditing representing 65.1%, 14.6% are expertise in internal audit only while 11.5% are expertise in both internal and external auditing and the remaining 8.9% are expertise in different type of audit.

● *Reduction in Fraudulent Practices by Top 5 Audit Firms*

63.0% of the respondents agree that an audit firm in the top 5 performing the external audit of any private companies may lead to reduction in fraudulent practices while the remaining respondents representing 37.0% disagree on this.

● *Audit Sampling*

Most of the respondents representing 75.5%, concur that external auditing based on audit sampling

lowers audit quality. The remaining 24.5%, however, do not share this opinion.

● *Audit Firm Rotation*

94.8% of the respondents concur that audit firm rotation enhances the audit quality while 5.2% disagree on same.

● *Audit Partner Rotation Criteria*

Utmost of the respondents representing 78.6% agree that the audit partner rotation criteria which is set for five years in Mauritius must be changed, though the outstanding 21.4% who differ with the idea of changing the audit partner rotation criteria.

Out of the 78.6% of the respondents who agreed the audit partner rotation criteria which is set for five years in Mauritius must be changed, 64.1% of them chose the new criteria to be less than 5 years while 14.6% chose 5 to 10 years as shown below in figure 2.

*Cross-tabulation of perceived factors affecting the external audit quality.*

*Table 5:* Cross-tabulation of the perceived factors affecting external audit quality and experience in auditing.

Perceived factors affecting external audit quality	Responses	Experience in Auditing		
		Yes	No	Total
Audit Complexity	Not selected	83	6	89
	Selected	95	8	103
Time Budget Pressure	Not selected	75	8	83
	Selected	103	6	109
Audit Tenure	Not selected	106	14	120
	Selected	72	0	72
Auditor's Experience	Not selected	32	6	38
	Selected	146	8	154
Audit Fees	Not selected	74	10	84
	Selected	104	4	108
Auditor's Independence	Not selected	44	7	51
	Selected	134	7	141
Professional Skepticism	Not selected	49	13	62
	Selected	129	1	130
Audit Risks	Not selected	100	6	106
	Selected	78	8	86
Audit Rotation	Not selected	77	10	87
	Selected	101	4	105

Respondents who have experience in auditing shall be well versed with the perceived factors which affect the external audit quality, that is why from the above cross tabulation both the perceived factors affecting the external audit quality and the respondents who have experience in auditing have been analysed. The utmost selected factors are auditor's experience, out of the 192 respondents, 154 selected the auditor's experience, followed by auditor's independence, professional skepticism, time budget pressure, audit fees, audit rotation, audit complexity, audit risks and lastly audit tenure. The outcomes of this evaluation are in line with the result of study performed by Nurjanah & Kartika (2016) who asserted that auditor experience impacted audit quality. As a result, the experience of the auditor is a crucial factor that could impact the quality of the external audit.

*Factor Analysis of perceived factors affecting the external audit quality.*

**Table 6:** KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.574
Bartlett's Test of Sphericity	Approx. Chi-Square	238.271
	df	36
	Sig.	.000

It is assumed when Kaiser-Meyer-Olkin (KMO) value is above 0.5 the sample is sufficient and an implication level for the Bartlett's test below 0.5 indicate there is substantial correlation in the data. In table 6, it can be seen that KMO value for all the nine factors is

*a) Mean Scores of Likert Scale Questions*

**Table 8:** Mean Scores

	Mean	Standard Deviation (SD)
<b><u>Audit Complexity</u></b>		
A highly complex company requires more time and resources being allocated to risk areas during audit to improve the quality.	4.16	.773
Audit quality ensures a true and fair view of the firm financial position and performance.	3.88	.819
Overall	4.02	.796
<b><u>Time Budget Pressure</u></b>		
The time frame allotted during audit planning for undertaking an external audit may affect the audit quality.	4.16	.745
<b><u>Audit Tenure</u></b>		
Short audit tenure strengthens auditor's independence, thus enhancing audit quality.	3.59	.961
<b><u>Auditor's Experience</u></b>		
The quality of the external audit is not dependent on the size of an audit firm, even if auditors have the same experience and technology.	3.85	.786
The external auditors must be technically competent to do an audit in accordance with International Standards on Auditing	4.53	.560
Overall	4.19	.673

0.574 which indicates that the sample is sufficient and we can proceed with all the factors analysis and the significance value of Bartlett's test is 0.000, hence, factor analysis is valid.

The communality value which is more than 0.5 should be considered for further analysis. It can be assumed as per table below all factors have communalities above 0.5. The factors having the highest extraction is time budget pressure (0.839), followed by audit experience (0.758), audit fees (0.699) and audit tenure (0.682).

**Table 7:** Communalities of factors affecting external audit quality

Communalities		
	Initial	Extraction
audit complexity	1.000	.673
time budget pressure	1.000	.839
audit tenure	1.000	.682
audit experience	1.000	.758
audit fees	1.000	.699
auditors' independence	1.000	.675
professional skepticism	1.000	.583
audit risks	1.000	.649
audit rotation	1.000	.546

Extraction Method: Principal Component Analysis.

The factors stated by high eigenvalues of more than 1 are likely to represent real underlying factors. The four components with high eigenvalues have a cumulative percentage of 67.8%.

<b><u>Audit Fees</u></b>		
The audit fees have an impact on the quality of an external audit.	3.91	.975
<b><u>Auditor's Independence</u></b>		
The more independent an external auditor is, the higher the audit quality will be.	4.07	.802
Any auditor accepting any gifts presented to him by a client will affect his independence and the quality of his performance of the audit.	3.88	1.010
Overall	3.97	.906
<b><u>Professional Skepticism</u></b>		
Professional scepticism plays a high role in the quality of an audit.	4.16	.773
The external auditor is forthright in dealing with difficult situations in a professional way.	3.88	.819
Overall	4.02	.796
<b><u>Audit Risks</u></b>		
The materiality used during the external audit improve the audit quality.	3.95	.811
The more control and measure taken by a company like an audit risk committee has an impact on the quality of the external audit.	3.91	.922
The higher the audit quality of external audit, the less risk of material misstatement are included in the financial statement of a company.	4.03	.712
Overall	3.96	.815
<b><u>Auditor Rotation</u></b>		
The same external auditor for various years may impact the quality of audit.	4.44	.749

➤ **Audit Complexity**

The respondents have greatly agreed as in contrast to the subsequent statement, the initial statement has an overall mean of 4.16 and a standard deviation of 0.773. The aggregate mean score is 3.88 along with a SD of 0.819, affirming there is elevated degree of agreement that audit quality confirms a real and reasonable aspect of the company financial point and operation. The overall score is 4.02 and SD 0.796 which shows that audit complexity affects external audit quality as per Putri et al. (2021).

○ **Time Budget Pressure**

Here most of the respondents agree on the time frame allotted during the audit planning for undertaking an external audit may affect the audit quality having a mean of 4.16 with SD of 0.745 as shown in below figure. Time budget pressure has an impact on the audit quality (Dwimilten and Riduwan, 2015).

○ **Audit Tenure**

The statement which states that short audit tenure strengthens auditor's independence thus enhancing audit quality, having a mild level of consistency as it holds the least mean score of 3.59 and SD 0.961 which implies there is broad array of responses of which some can be disputes.

○ **Auditor's Experience**

Most of the respondents strongly agree on external auditors must be technically competent to do an audit as the second statement has a mean of 4.53 with SD of 0.560. The second statement has a mean of 3.85 with SD 0.786 which shows not all respondents agree that the external audit quality is not subject of the extent of an audit firm. The overall score is 4.19 and SD 0.673 which shows auditor's experience do impacts the external audit quality according to Ningrum and Wedari (2017).



### ● *Audit Fees*

The statement on the audit fees has an impression on the quality of an external audit has a mean of 3.91 with a SD 0.975 specifying there is a particular impact on the external audit quality according to Abdul Rohman (2014).

### ● *Auditor's Independence*

Statement 1 has the top mean of 4.07 with SD 0.802 contrasted to the second statement having a mean of 3.88 with SD 1.010. The overall score is 3.97 with SD 0.906, meaning that there is some impact of the factor auditor's independence on external audit quality according to Hastuti et al. (2017).

### ● *Professional Skepticism*

Professional skepticism do performs a high position in the quality of an audit as this statement has the greatest mean of 4.16 with SD 0.773 linked to the second statement having a mean of 3.88 with SD 0.819. The overall score is 4.02 with SD 0.796 indicating the factor professional skepticism do have an impact on external audit quality in accord with Mednick (1990).

### ● *Audit Risks*

The respondents highly agree the third statement which is on the higher the audit quality of external audit, the less possibility of material misstatement are included in the financial reports of a company as it has the greatest mean of 4.03 with SD 0.712 contrasted to the other two statements. The first statement has a mean of 3.95 with SD 0.811, lastly the second statement has a mean of 3.91 with SD 0.922. The overall score is 3.96 with SD 0.815 indicating that the factor audit risks do affect the external audit quality as well according to Mulyadi (2002).

### ● *Auditor Rotation*

The targeted professionals have an elevated strong acceptance as shown in below figure having a mean of 4.44 and SD 0.749 specifying the auditor rotation may impact the quality of audit as per Kurniasih and Rohman (2014).

## b) *Inferential Analysis*

### i. *Normality Test*

To regulate the statistical analysis to execute upon the variables, a normality test is described. A normality test is performed on the Likert scale elements, the demographic factors along with the factor affecting external audit quality the greatest. The ShapiroWilk is utilized to ascertain the p-value and the significance level is at 0.05. The outcome shows for wholly Likert scale items, demographic factors along with factors affecting the external audit quality, the p-value is fewer than 0.05. Hence, this suggests the data point among all the assertions along with factors affecting the external audit quality. Similar relates for the information point of the demographic factors. Consequently, a non-

parametric test including the Chi-square test, One-way Anova test along with the Mann Whitney U-test are executed.

### ii. *Mann Whitney U-Test*

Given that the facts are not dispersed normally, the Mann Whitney U-Test is accepted to execute the hypothesis analysis besides verifying if there are any substantial variations amongst experienced and inexperienced person in auditing in relative to the opinions on every factor. The p-value is defined by the Asymptotic Significance level of 0.05 for each of the tests.

#### 1. *Mann-Whitney Test for Audit Complexity Factor*

*H1: Audit complexity affects the external audit quality.*

*The hypothesis for this component is as follows:*

$H_0$  = Audit complexity does not affect the external audit quality.

$H_1$  = Audit complexity affects the external audit quality.

The test for both statements reveal that audit complexity does not affect the external audit quality as the p-value is more than 0.05, which is, 0.650 and 0.289, indicating that the null hypothesis is accepted being insignificant. The mean rank of experienced for both statements is higher than inexperienced however the variations are not that huge. Hence, the  $H_0$  is accepted, revealing that audit complexity does not affect the external audit quality. The finding is linked up with Susanto et al. (2020) who revealed that task complexity had no substantial effect on audit quality.

*Table 9:* Mann-Whitney Test of Audit Complexity factor

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
A highly complex company requires more time and resources being allocated to risk areas during audit to improve the quality.	Experienced	98.40	908.0	-1.846 / 0.650
	Inexperienced	72.36		
Audit quality ensures a true and fair view of the firm financial position and performance.	Experienced	97.60	1050.0	-1.060 / 0.289
	Inexperienced	82.50		

### 2. Mann-Whitney Test for Time Budget Pressure

*H2:* Time Budget Pressure affects the external audit quality.

*The hypothesis for this factor is as follows:*

$H_0$  = Time budget pressure does not affect the external audit quality

$H_1$  = Time budget pressure affects the external audit quality.

The test reveals that time budget pressure affects the external audit as shown below; the test is

significant at 0.05 and the p-value for the statement is 0.000. As a result,  $H_0$  is disregarded. The mean ranks expose significant variations between the experienced and inexperienced people in auditing on the statement of the factor time budget pressure. Hence, the  $H_1$  is accepted, revealing that time budget pressure affects the external audit quality. The discovery is related to Dwimilten and Riduwan's (2015) who demonstrated that time budget pressure has a favorable effect on audit quality.

*Table 10:* Mann-Whitney Test of Time Budget Pressure factor

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
The time frame allotted during audit planning for undertaking an external audit may affect the audit quality.	Experienced	100.63	510.5	-4.214 / 0.000
	Inexperienced	43.96		

### 3. Mann-Whitney Test for Audit Tenure

*H3:* Audit Tenure affects the external audit quality.

*The hypothesis for this factor is as follows:*

$H_0$  = Audit Tenure does not affect the external audit quality

$H_1$  = Audit Tenure affects the external audit quality.

The test for the statement on audit tenure shows that audit tenure does not affect the external audit quality as shown below, the p-value is superior to 0.05 that is 0.263 which is an insignificant value, implying the null hypothesis is acknowledged. The mean rankings disclose major differences between the experienced and

inexperienced people in auditing on the statement of the factor audit tenure. Hence, the  $H_0$  is agreed, revealing that audit tenure does not affect the external audit quality. The finding is related to Fitriany et al. (2016), there is an optimum point of audit tenure as a substitute of a straightforward decrease or increase result.

*Table 11: Mann-Whitney Test of Audit Tenure factor*

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
Short audit tenure strengthens auditor's independence, thus enhancing audit quality.	Experienced	97.68	1036.5	-1.120 / 0.263
	Inexperienced	81.54		

4. *Mann-Whitney Test for Auditor's Experience factor*

*H4: Auditor's experience affects the external audit quality.*

*The hypothesis for this factor is as follows:*

$H_0$  = Auditor's experience does not affect the external audit quality.

$H_1$  = Auditor's experience affects the external audit quality.

The test for both statements reveal that auditor's experience affects the external audit quality as the null hypothesis is accepted for statement 2 but

rejected for statement 1 because the p-value for the second statement is greater than 0.05 that is 0.747, making it insignificant, whereas the p-value for the first statement is equivalent to 0.05, making it significant. The mean rankings show significant variations on both statements of the factor auditor's experience as the mean ranking of the experienced is higher for statement 1 than statement 2. Hence, the  $H_1$  is accepted, revealing that auditor's experience affects the external audit quality. The finding is linked up with Hanjani, A. (2014) who asserts the experience of an auditor has a substantial positive impact on audit quality.

*Table 12: Mann-Whitney Test of Auditor's Experience factor*

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
The quality of the external audit is not dependent of the size of an audit firm, even if auditors have the same experience and technology.	Experienced	99.20	765.5	-2.776 / 0.050
	Inexperienced	62.18		
The external auditors must be technically competent to do an audit in accordance with International Standards on Auditing.	Experienced	96.81	1190.0	-3.230 / 0.747
	Inexperienced	92.50		

5. *Mann-Whitney Test for Audit Fees*

*H5: Audit Fees affect the external audit quality.*

*The hypothesis for this factor is as follows:*

$H_0$  = Audit Fees do not affect the external audit quality

$H_1$  = Audit Fees affect the external audit quality.

The test for the statement on audit fees shows that audit fees do not affect the external audit quality as shown below, the p-value is better than 0.05, that is, 0.740 being insignificant, implying that the nil hypothesis is recognized. Hence, the  $H_0$  is accepted, revealing that audit fees do not affect the external audit quality. The

finding is related up with Salehi et al. (2019) indicates no substantial relationship amongst audit quality and audit fees stickiness.

*Table 13:* Mann-Whitney Test of Audit Fees factor

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
The audit fees have an impact on the quality of an external audit.	Experienced	98.40	907	-1.788 / 0.740
	Inexperienced	72.29		

6. *Mann-Whitney Test for Auditor's Independence factor*  
*H6:* Auditor's Independence affects the external audit quality.

*The hypothesis for this factor is as follows:*

$H_0$  = Auditor's independence does not affect the external audit quality.

$H_1$  = Auditor's independence affects the external audit quality.

The test for both statements reveal that auditor's independence impacts the external audit quality since the p-value is superior to 0.05 for the

second statement being 0.745 whereas for the first statement the p-value is equal to 0.00 when the test reveals to be substantial at 0.05. The null hypothesis is accepted for the second statement but is rejected for the first statement which implies that  $H_0$  is rejected. As the mean ranking of the experienced is higher for statement 1 than statement 2 but the differences are not that huge. Hence, the  $H_1$  is accepted, realizing auditor's independence affects the external audit quality. The finding is associated up with Hastuti, et al. (2017) who revealed that independence had substantial and partial influence on the audit quality.

*Table 14:* Mann-Whitney Test of Auditor's Independence factor

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
The more independent an external auditor is, the higher the audit quality will be.	Experienced	100.30	569.5	-3.676 / 0.000
	Inexperienced	48.18		
Any auditor accepting any gifts presented to him by a client will affect his independence and the quality of his performance of the audit.	Experienced	96.16	1185.0	-3.250 / 0.745
	Inexperienced	100.86		

7. *Mann-Whitney Test for Professional Skepticism factor*

*H7:* Professional Skepticism affects the external audit quality.

*The hypothesis for this factor is as follows:*

$H_0$  = Professional Skepticism does not affect the external audit quality.

$H_1$  = Professional Skepticism affects the external audit quality.

The test for both statements 1 and 2 discloses that professional skepticism does not affect the external audit quality because the p-value is more than 0.05, at 0.650 and 0.289 they are both insignificant, indicating

the void hypothesis is accepted. The mean rank of experienced for both statements is higher than inexperienced for the factor of professional skepticism. But the differences are not that huge. Hence, the  $H_0$  is accepted, revealing that professional skepticism does not affect the external audit quality. The finding is associated up with Futri and Juliarsa (2014) indicates that professionalism has no relation to audit quality.



*Table 15: Mann-Whitney Test of Professional Skepticism factor*

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
Professional scepticism plays a high role in the quality of an audit.	Experienced	98.40	908.0	-1.846 / 0.650
	Inexperienced	72.36		
The external auditor is forthright in dealing with difficult situations in a professional way.	Experienced	97.60	1050.0	-1.060 / 0.289
	Inexperienced	82.50		

8. *Mann-Whitney Test for Audit Risks factor*

*H8: Audit Risks affect the external audit quality.*

*The hypothesis for this factor is as follows:*

$H_0$  = Audit risks do not affect the external audit quality.

$H_1$  = Audit risks affect the external audit quality.

The p-value for statements 1 and 2 is 0.366 and 0.055 correspondingly, so greater than the p-value 0.05 and not significant. But, for statement 3, it is 0.025, lower than the pvalue 0.05 and is significant. The void

hypothesis for statement 1 and 2 is recognized but is rebuffed for statement 3 as the mean rank of experienced for statement 3 is higher than statement 1 and 2 but the differences are not that huge. Thus, the  $H_1$  is accepted, revealing audit risks affect the external audit quality. The finding is linked up with Mulyadi (2002) who asserts the risk in auditing implies that the auditor receives a certain degree of uncertainty in the conduct of the audit.

*Table 16: Mann-Whitney Test of Audit Risks factor*

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
The materiality used during the external audit improve the audit quality.	Experienced	97.40	1085.0	-0.903 / 0.366
	Inexperienced	85.00		
The more control and measure taken by a company like an audit risk committee has an impact on the quality of the external audit.	Experienced	94.45	881.0	-1.921 / 0.055
	Inexperienced	122.57		
The higher the audit quality of external audit, the less risk of material misstatement are included in the financial statement of a company.	Experienced	98.76	843.5	-2.238 / 0.025
	Inexperienced	67.75		

9. *Mann-Whitney Test for Auditor Rotation*

*H9: Auditor Rotation affects the external audit quality.*

*The hypothesis for this factor is as follows:*

$H_0$  = Auditor rotation does not affect the external audit quality

$H_1$  = Auditor rotation affects the external audit quality.

The test for the statement on auditor rotation is 0.007 which is below the p-value at 0.05 being

significant. This concludes the null hypothesis is denied, and the mean ranks disclose significant variations among the experienced and inexperienced persons in auditing on the statement of the factor auditor rotation. Hence, the  $H_1$  is accepted, revealing that auditor rotation affects the external audit quality. This finding is conforming to Kurniasih and Rohman (2014) who uncover that auditor rotation can impact audit quality.

*Table 17: Mann-Whitney Test of Auditor's Rotation factor*

<u>Perceived factor affecting external audit quality</u>	<u>Audit Experience</u>	<u>Mean Ranks</u>	<u>Mann Whitney U Test</u>	<u>Z-Value / SIG</u>
The same external auditor for various years may impact the quality of audit.	Experienced	99.18	769	-2.696 / 0.007
	Inexperienced	62.43		

#### 10. One-way Anova Test for Gender

The One-way Anova test will tell in case there is a considerable variation between the means of two or other levels of a variable if p-value is less than 0.05 for the test.

*H10: Gender affects external audit quality.*

*To test the relationship, the following hypothesis have been established:*

$H_0$  = Gender does not affect the external audit quality.

$H_1$  = Gender affects the external audit quality.

As per Table 16 below, the P-value (sig.) is 0.001 and this implies that the results are extremely substantial as p-value is fewer than 0.05 and are thus quite unlikely to have happened by coincidence, hence the null hypothesis is denied of the One-way Anova test. It is revealed gender and external audit quality have a link, meaning gender affects external audit quality. This finding is in accord with Ittonen and Peni (2009) who advocate the idea that auditor gender may be systematically related with audit quality.

*Table 18: One-way Anova Test for Gender*

ANOVA					
Experience in audit practice					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.672	1	.672	10.382	.001
Within Groups	12.307	190	.065		
Total	12.979	191			

#### 11. Chi-Square Test

The established hypotheses cited in the literature review are tested using Chi-square, which is used to examine the relationship between demographic factors and the quality of external audits. For the analysis to be considered significant, a p-value of 0.05 is used as the asymptotic significance.

*Chi-Square Test for Age*

*H11: Age affects external audit quality.*

*To ascertain whether age may be correlated to audit quality, the following hypothesis is established:*

$H_0$  = There is no relationship between age and external audit quality.

$H_1$  = There is a relationship between age and external audit quality.

The Pearson Chi-Square value is 8.138, and the p-value is 0.430, as shown in the table below. P-value is greater than 0.05, which indicates an insignificant value. The void hypothesis is accepted. Hence, it is assumed there is no relationship which prevails among age and the external audit quality which is being delivered. Rhodes (1983) initiates evidence that rising age does not diminish the job performance, inferring there is no relationship between age and audit quality.

*Table 19: Chi-Square Test of Age*

		External Auditing Experience	
		Experienced	Inexperienced
Age group	18 - 25	28.09%	57.14%
	26 - 35	39.89%	42.86%
	36 - 55	21.91%	0%
	Above 55 years	10.11%	0%
Total		100%	100%
Pearson Chi-square Value = 8.138			
Asymp. SIG (2 sided) = 0.430			

## 12. Chi-Square Test for Education

*H12: Education affects external audit quality.*

*To test the relationship, the subsequent hypothesis has been used:*

$H_0$  = Education does not affect external audit quality.

$H_1$  = Education affects external audit quality

The Pearson Chi-Square value is 3.944, and the p-value is 0.268, as shown in the table below. P-value is

greater than 0.05, which indicates that it is not significant. The void hypothesis is appropriate. Hence, it can be assumed that there is no link which prevails among education and external audit quality. The finding of this study is in line with Burke et al. (2018) who asserts the education background knowledge of particular audit partner have no effect on the audit quality.

*Table 20: Chi-Square Test of Education and external audit quality*

		External Auditing Experience	
		Experienced	Inexperienced
Education Level	High School Certificate	14.05%	14.29%
	Bachelor's Degree	47.19%	71.42%
	Master's Degree	10.11%	0%
	Other	28.65%	14.29%
Total		100%	100%
Pearson Chi-square Value = 3.944 Asymp. SIG (2 sided) = 0.268			

*H13: Education affects type of auditing expertise.*

The above analysis on education and relationship with external audit quality turned out to be insignificant that is why the following hypothesis have been built to find out whether the results might be significant for education and type of auditing expertise:

$H_0$  = There is no relationship between education and type of auditing expertise.

$H_1$  = There is a relationship between education and type of auditing expertise.

The Pearson Chi-Square value is 61.383, and the p-value is 0.000 as shown in the table below, p-value is significant being below the 0.05 level of significance. Consequently, the last hypothesis H1 is approved. It can be determined that there is a link which prevails among education and type of auditing expertise. The finding of this analysis is in line with Bröcheler et al. (2004) who acknowledged education has a definite effect on audit firm accomplishment since more educated auditors are more competent and accomplish well.

*Table 21: Chi-Square Test of Education and type of auditing expertise*

		Type of Audit Expertise			
		Internal audit	External audit	Both internal and external audit	Other
Education Level	High School Certificate	7.14%	20%	0%	0%
	Bachelor's Degree	67.86%	48%	0%	88.23%
	Master's Degree	0%	11.2%	18.18%	0%
	Other	25%	20.8%	81.82%	11.77%
Total		100%	100%	100%	100%
Pearson Chi-square Value = 61.383 Asymp. SIG (2 sided) = 0.000					

## V. DISCUSSIONS OF FINDINGS

Built on the test performed, it is observed that gender affects the external audit quality and education has a relationship with the type of auditing expertise of the professionals. Even though most of the respondents have done their tertiary education as per Table 20, the result show education does not affect the external audit

quality. From Table 19, it can be stated that age does not have any impact on the audit quality.

Furthermore, it can be implicit that time budget pressure, audit experience, auditor's independence, audit risks and auditor rotation are the factors which affect the external audit quality as they have significant p-values while audit complexity, audit tenure, audit fees, professional skepticism have insignificant results

revealing that these factors do not affect the external audit quality. Gender also affects the external audit quality having significant p-values, whereas age and education do not affect the external audit quality as they have insignificant p-values. As the result between education and external audit quality has turned out to be insignificant, the relationship between education and type of auditing expertise was tested and the result turned out to be significant with a p-value of 0.000. Work expertise may strengthen the relationship between educational level and job performance. This opinion is directly proportional to the results of Subhan (2012) who revealed the educational background has significant effect on work quality delivered.

## VI. CONCLUSION AND RECOMMENDATIONS

This research aims to ascertain the factors that affect the external audit quality of private companies in Mauritius. It investigated the factors such as audit complexity, time budget pressure, audit tenure, auditor's experience, audit fees, auditor's independence, professional skepticism, audit risks and auditor rotation. Even gender, age, education level was tested to know whether they affect the external audit quality of private companies in Mauritius. According to this conclusion, there are significantly more experienced (178) than non-experienced (14) auditing respondents out of a total of 192 respondents. The Mann-Whitney U-test, One-way Anova test, and Chi-square test attained all the objectives and research questions of this analysis.

*Objective 1 – To identify if the auditor's educational background and experience might affect the quality of external audit of private companies in Mauritius.*

The analyse revealed that level of education does not affect the external audit quality of private companies in Mauritius while the level of education does have an impact on the type of auditing expertise of the professionals. The Chi-square test's p-value of 0.000 signifies that there is a significant relationship amongst education and the type of auditing expertise. This implies that a person can specialise himself in a specific audit type whether external or internal audit or even both upon pursuing further education (or training), this demonstrates education has a direct impact on auditing expertise.

The quality of the external audit is prompted by the auditor's experience; the extra exposure an auditor has, the better the quality of the ensuing audit. The experience shall continue to improve along with the additional audits they carry out. An auditor ought to have adequate work experience, and this must be in accord with general standards and professional standards which clarify that auditors are expected to have adequate work experience in the profession they are involved in. It is deduced that experience of the auditor affects the external audit quality work being delivered

while education have an impact on the type of auditing expertise the professionals are in.

*Objective 2 - To determine the factors that professionals believe might affect the external audit quality in Mauritius.*

The empirical results revealed that time budget pressure, audit experience, auditor's independence, audit risks and auditor rotation are the most influential factors which affect the external audit quality while audit complexity, audit tenure, audit fees, professional skepticism are those factors which do not affect the external audit quality in private companies in Mauritius. Each of the hypotheses from H1 to H9 have been established by the Mann-Whitney U Test. Hypothesis H10 has been proved by Oneway Anova Test that gender does affect the external audit quality. The opinions of the experienced and inexperienced on the elements affecting the quality of the external audit varied significantly. Hypotheses from H11 to H12 have been tested using Chisquare test and it is asserted they do not have a relationship with external audit quality while education and the type of auditing expertise (H13) have a relationship. It is revealed that there are various further factors which affect the external audit quality as per the respondents such as time pressure, working conditions, technology, mentoring, and competence.

*Objective 3 - Recommending certain steps that can improve external audit quality and its practices in Mauritius.*

Most of the respondents have provided their recommendations to enhance the quality of external audit in Mauritius. It can be ascertained most of the respondents hinted the audit system can be enhanced by providing extra training to the auditors for them to keep updated with new standards. Establishing mechanisms must be placed by authorities in relation to all the other recommendations of the respondents for improvement of the external audit system in Mauritius.

### a) Recommendations

Established on the findings and the challenges debated in the initial chapter and the utmost suggestions provided by the respondents, the following recommendations to improve quality of external audits are made.

- Regulatory bodies in Mauritius such as FRC should conduct efficient quality evaluations of audits being conducted out by the external audit firms frequently.
- Medium and big sized external audit firms in Mauritius should consider investing in smart and intuitive audit platform for better efficiency alike the company KPMG (Klynveld Peat Marwick Goerdeler) who recently adapted the smart audit platform Clara to automate its audits.
- Proper trainings on audit software should be given to the employees as with the rapid growth in technology nowadays external auditors should stay





ahead of these changes to offer appropriate advice and support services to improve the efficiency and efficacy of external auditing.

- The existing audit partner rotation requirements in Mauritius which is for 5 years should be replaced by 3 to 5 years criteria to increase independence between external auditors and clients.
- The auditee committee of private firms in Mauritius should request to rotate the external auditing staffs on a regular basis to avoid any familiarity threat.
- Continuous coaching should be given to employees to help them comply with new auditing standards and maintain high ethical standards.
- More use of expert in complex or technical audit to identify goods or value of assets which have high materiality impact.

#### b) *Limitation of the Study and Further Research*

The usage of the random sampling has not been that effective since roughly 58% of responses were attained which is not adequate for the study. Furthermore, the outcomes had been biased to certain degree. To enhance the opinions on the factors affecting the external audit quality, additional concepts and statistical tests have not yet been developed in this study. A larger range of information could have been obtained if data collection strategies such as interviews or paper-wise questionnaires were used instead of online surveys but due to time constraints this was not possible. Supplementary sorts of sampling methods could be employed like stratified sampling in forthcoming exploration. Supplementary research can be done to ascertain how other factors such as motivation or technology could affect the external audit quality in Mauritius.

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# Impacts of the Coronavirus on Brazilian Agribusiness and its Relationship with the Gross Domestic Product

By Lucas Braga Barreto & Jocycleber Meireles de Souza

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**Abstract-** The objective of this study was to identify the consequences of the pandemic on Brazilian agribusiness and its relationship with the Gross Domestic Product (GDP). Through an analysis of spreadsheets published by CEPEA and through a study of the indebtedness and profitability indicators of eighteen companies in the agribusiness sector, listed in the non-cyclical consumption sector of B3 S. A. The collection of the financial data of the companies was through the Econometrics database. The research is characterized as descriptive, with a documentary procedure, the longitudinal cut of data analysis was carried out between 2019 and 2020, as it was the time frame with the greatest impact that the pandemic brought to the indicators, as for the approach, it is characterized as quantitative. To establish the relationship between the economic index (GDP) and the economic-financial indicators of agribusiness companies, the research used Pearson's Correlation as a statistical tool. The study findings indicate that 89% of agribusiness companies increased their revenues in the year of the pandemic, through the demand for agricultural commodities. A rise in the value added of the sector was evidenced by the insertion of new international markets, favored by the increase in the dollar.

**Keywords:** *pandemic; agribusiness; indicators.*

**GJMBR-D Classification:** *JEL Code: Q13*



*Strictly as per the compliance and regulations of:*





# Impacts of the Coronavirus on Brazilian Agribusiness and its Relationship with the Gross Domestic Product

## Impactos Do Coronavírus No Agronegócio Brasileiro E Sua Relação Com O Produto Interno Bruto

Lucas Braga Barreto <sup>α</sup> & Jocycleber Meireles de Souza <sup>ο</sup>

**Abstract** The objective of this study was to identify the consequences of the pandemic on Brazilian agribusiness and its relationship with the Gross Domestic Product (GDP). Through an analysis of spreadsheets published by CEPEA and through a study of the indebtedness and profitability indicators of eighteen companies in the agribusiness sector, listed in the non-cyclical consumption sector of B3 S. A. The collection of the financial data of the companies was through the Econometrics database. The research is characterized as descriptive, with a documentary procedure, the longitudinal cut of data analysis was carried out between 2019 and 2020, as it was the time frame with the greatest impact that the pandemic brought to the indicators, as for the approach, it is characterized as quantitative. To establish the relationship between the economic index (GDP) and the economic-financial indicators of agribusiness companies, the research used Pearson's Correlation as a statistical tool. The study findings indicate that 89% of agribusiness companies increased their revenues in the year of the pandemic, through the demand for agricultural commodities. A rise in the value added of the sector was evidenced by the insertion of new international markets, favored by the increase in the dollar. Agribusiness proved to be strong and effective through its share of 26.6% in the country's GDP, this was its biggest mark in the historical series, showing that agribusiness is a resilient, promising and competitive sector even in the midst of a health crisis and economic.

**Keywords:** pandemic; agribusiness; indicators.

**Resumo** O objetivo deste estudo foi identificar os impactos da pandemia sobre o agronegócio brasileiro e a sua relação com o Produto Interno Bruto (PIB). Por meio de uma análise de planilhas divulgadas pelo CEPEA e por meio de um estudo dos indicadores de endividamento e rentabilidade de dezoito empresas do ramo do agronegócio, listadas no setor de consumo não cíclico da B3 S. A. A coleta dos dados financeiros das empresas foi por meio da base de dados *Econômica*. A pesquisa se caracteriza como descritiva, com procedimento documental, o recorte longitudinal de análise dos dados foi feito entre 2019 e 2020, pois foi o espaço temporal de maior impacto que a pandemia trouxe para os indicadores, quanto a abordagem, se caracteriza como quantitativa. Para se estabelecer a relação entre o índice

econômico (PIB) e os indicadores econômico-financeiros das empresas do agronegócio, a pesquisa utilizou a Correlação de Pearson como ferramenta estatística. Os achados do estudo indicam que 89% das empresas do agronegócio aumentaram suas receitas no ano da pandemia, através da demanda por *commodities* agrícolas. Uma alta no valor agregado do setor foi evidenciada com inserção de novos mercados internacionais, favorecido através do aumento do dólar. O agronegócio se mostrou forte e eficaz através de sua participação de 26,6% no PIB do país, essa foi sua maior marca na série histórica, mostrando que o agronegócio é um setor resiliente, promissor e competitivo mesmo em meio a uma crise sanitária e econômica.

**Palavras-Chave:** pandemia; agronegócio; indicadores.

### 1. INTRODUÇÃO

Em dezembro de 2019, foi registrado na China o primeiro caso de Covid-19. A partir daí se deu início uma infecção que se propagava por diversos países. De acordo com Aquino *et al.* (2020) a doença Covid-19 é uma infecção respiratória provocada pelo Coronavírus da Síndrome Respiratória Aguda Grave 2 (SARS-CoV-2). No dia 11 de março de 2020 a Organização Mundial da Saúde (OMS) decretou o evento como uma pandemia (SCHMIDT *et al.*, 2020).

No território brasileiro, no dia 26 de fevereiro de 2020 foi registrado pelo Ministério da Saúde do Brasil (MS-Brasil) o primeiro caso da doença na cidade de São Paulo (LIMA, 2020). De acordo com dados do Ministério da Saúde do Brasil (2022) até o mês de abril de 2022, foram registrados 30.261.088 casos da Covid-19 no Brasil, e um montante de mais de 662 mil mortes provocadas pela doença.

Os impactos da pandemia pelo mundo foram inúmeros, dificuldades sanitárias, sociais, políticas e econômicas. Devido a medidas de contingenciamento, os níveis negativos de demanda, se prolongados, devem causar um choque negativo na oferta, que pode agravar e fragilizar diversas empresas, além de prolongar a crise econômica (BARROS, 2020).

Um dos segmentos que se mostrou incólume com os diversos impactos da pandemia foi o agronegócio. Os impactos negativos, não serão

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proporcionais aos ciclos da economia como acontece com indústria e serviços. Isso porque a alimentação proveniente do agronegócio é base alimentar essencial, e se classifica como item de demanda inelástica ao preço e à renda. Buranello (2018) defende que o agronegócio representa um sistema integrado de atividades, que vão desde o suprimento de insumos até o processamento, acondicionamento, armazenamento, distribuição e consumo de resíduos de valor econômico de origem agrícola, pecuária, de reflorestamento ou de aquicultura.

O agronegócio vem a cada dia se tornando destaque por sua relação estratégica com a economia do Brasil, dado que o setor tem participação primordial na formação da economia micro e macro. A participação macroeconômica, pode ser traduzida por meio da atuação do setor na formação de índices econômicos, como o Produto Interno Bruto (PIB), que se entende como a soma de todos os bens e serviços finais produzidos por um país (IBGE, 2021). Já na perspectiva microeconômica, o setor do agronegócio pode ser medido por meio dos indicadores econômico-financeiros, que funcionam como importante ferramenta na contabilidade gerencial, bem como no processo decisório.

No início do ano de 2020, com a chegada de uma situação pandêmica ao mundo, diversas foram as incertezas sobre a estabilidade da economia, do agronegócio, dos índices econômicos e dos indicadores econômico-financeiros. De acordo com o que defende Mazzucato (2020) um enfrentamento a uma crise de saúde induzida por uma pandemia, pode desencadear uma crise econômica com consequências desconhecidas para o prosseguimento financeiro do país.

Com o cenário de pandemia, a economia e seus indicadores acabam se tornando uma incógnita com relação ao comportamento de seus índices e suas participações estruturais. Diante do exposto, o presente estudo busca responder a seguinte questão de pesquisa: *Quais os impactos da pandemia do novo coronavírus sobre o agronegócio brasileiro, e a sua relação com o Produto Interno Bruto (PIB)?* Dessa forma, o estudo objetiva identificar os impactos da pandemia sobre o agronegócio brasileiro, e a sua relação com o Produto Interno Bruto (PIB). Como caracteriza o estudo de Santana (2018), quando se fala que a variação de índices econômicos, tais como o PIB, pode ter vinculação direta com a contabilidade das empresas da área do agronegócio. Em sua pesquisa, ele faz o estudo da relação e comportamento dos indicadores econômico-financeiros com relação a variação de índices econômicos. O estudo demonstra que mesmo com a economia em declínio, o agronegócio tem demonstrado, de acordo com seus indicadores econômico-financeiros, que é um setor resistente às intempéries econômicas.

O presente estudo se faz necessária para conhecer melhor sobre a problemática levantada com a questão de pesquisa, permitindo a compreensão dos impactos que a economia brasileira sofreu no enfrentamento de uma pandemia, bem como buscar o entendimento sobre o setor do agronegócio que se mostra a cada dia mais promissor para nosso país. Visa ainda, complementar a literatura precedente, oferecendo uma análise da atual conjuntura da atual crise econômica e sanitária. Por fim, para a universidade, para os usuários da informação, este estudo servirá como fonte de conhecimento, bem como estímulo para novas pesquisas.

## II. REFERENCIAL TEÓRICO

### a) *Coronavírus Em Meio A Economia*

De acordo com Aquino *et al.* (2020) a doença batizada Covid-19 (do inglês *Coronavirus Disease* 2019), é um vírus provocante da Síndrome Respiratória Aguda Grave 2 (SARS-CoV-2). O vírus tem característica de avançar por todos os países, em todos continentes, sem distinção de classe social, idade ou gênero. No dia 26 de fevereiro foi confirmado o primeiro teste positivo da doença no Brasil, na cidade de São Paulo (LIMA, 2020). Desde então se alastrou de maneira exponencial e alarmante, na data de 11 de março, a OMS decretou o fato como uma pandemia (SCHMIDT *et al.*, 2020).

Nos meses seguintes, a Covid-19 manifestou-se em milhões de casos positivos, levando a óbito o primeiro brasileiro no dia 16 de março de 2020, em seguida, foram milhares de vítimas no Brasil e no restante do mundo (MARTIN *et al.*, 2021). Com a necessidade de ações imediatas, devido ao elevado número de infectados, mortes e perdas irreparáveis, surge a necessidade do isolamento social. Silva (2020) fala que o isolamento social é implementado pelos governantes no intuito de desacelerar a taxa de contaminação da população, buscando assim evitar um colapso no sistema de saúde. Essa restrição social resulta ser a medida mais efetiva para evitar a disseminação da doença.

As atividades denominadas não essenciais, tiveram que se reinventar para manter a continuidade, foi aí que surgiu as formas remotas de trabalho, estudo e comércio. Os efeitos da pandemia sobre a economia do país surgiria como um enfrentamento jamais visto, estimativas de impactos no crescimento do PIB do ano de 2020 é um dos agravantes possíveis, pois com o desempenho da economia em risco, consequências como: redução das exportações, queda no preço de commodities e piora nos termos de troca, interrupção das cadeias produtivas como o setor do agronegócio, serviços, insumos e indústria, além de queda de preços de ativos, redução de condições financeiras, redução de fluxo de pessoas e mercadorias (BRASIL, 2020). Todos esses canais podem manifestar uma queda da

economia, gerando um novo e alto grau de incerteza nos cenários respectivos.

O setor do agronegócio por vezes sofre impactos quanto ao clima, pragas, doenças ou até mesmo choques internacionais de câmbio que podem desagregar valor às suas produções de trajetórias crescentes (BARROS, 2020). Dessa forma, o setor do agro foi um dos diversos atingidos pela crise, a pandemia e suas consequentes medidas sanitárias e econômicas adicionaram um novo e alto grau de indeterminação aos cenários prospectivos das cadeias do agronegócio (CEPEA, 2020).

#### b) O Agronegócio Na Pandemia

Segundo Junqueira e Bezerra (2018) o termo agronegócio deriva do termo americano *agribusiness* e, a partir da década de 1990, passa a ser amplamente difundido ao Brasil como o representante de uma nova fase da agricultura. Fase essa que faz frente no Brasil como principal meio pelo qual o país integra à economia mundial, ou seja, o agronegócio hoje, é quem mantém o Brasil como uma potência da economia, através de exportações, fornecimento de matérias-primas, insumos, alimentos, entre outras atividades.

Os efeitos das medidas de contenção da Covid-19 refletiram em diversas atividades econômicas, de maneira singular em cada uma delas. Sá *et al.* (2020) defendem que o agronegócio global certamente sofrerá impactos de oferta e demanda, ainda que a heterogeneidade do setor indique que estes serão diferenciados em função da organização produtiva e logística de cada cadeia produtiva em questão. Em contrapartida a isso, Schneider *et al.* (2020) demonstram que a pandemia poderá ter efeitos benéficos, podendo ter aumento na oferta da produção e a inserção internacional do agronegócio no Brasil.

Em relação ao comportamento das cadeias produtivas e consumidoras do agronegócio, cenários traçados para o médio prazo, na perspectiva de que as ofertas e demandas, bem como os custos de produção, logística e abastecimento deveram ser afetados pelos efeitos da pandemia. Isso pode ser detalhado pelo que explica o Banco Central do Brasil (2020), quando fala da previsão do PIB brasileiro em 2020, defendendo que poderá haver uma retração de 1,18%. Com isso, a retomada da economia prevista no início do ano poderá não acontecer.

Para a população, esses efeitos poderão ser sentidos na perspectiva do poder de compra e na forma de geração de novos empregos, pois com a retração dos setores, canais de consumo e redes de serviços podem ser comprometidos em favorecer os consumidores na forma de acesso aos produtos e serviços finais. Já na perspectiva das empresas do setor, poderá ser ameaçado o comportamento de seus indicadores econômico-financeiros.

Em contrapartida aos efeitos negativos, segundo estudos do CEPEA (2020) os efeitos negativos do coronavírus sobre as exportações poderá ser balanceada com a alta do dólar ao longo do ano e com a intensificação da demanda por *commodities* (produtos que funcionam como matéria-prima) agrícolas, os produtores deverão produzir e gerar ainda mais lucros e vendas para atender as altas de consumo dos derivados agrícolas.

Em face ao exposto, o Ministério da Economia do Brasil (2020) divulgou dados estatísticos que mostram que dentre as exportações do Brasil, o setor do agronegócio teve aumento de 17,3%, se sobressaindo quando comparado com a indústria extrativa (1,5%) e sobre a indústria de transformação, que teve regressão de 12%, da mesma forma na soma dos demais setores que diminuiram suas taxas de exportação em 2,2%.

Com isso, evidenciado pelo aumento de sua produtividade, o setor do agronegócio toma sua importância na conjuntura econômica do país, pois mesmo em período de crise em diversos setores, se mostra forte e eficaz contra as intempéries que podem lhe ocorrer. Essa importância pode ser traduzida na formação de índices macroeconômicos, que evidenciam a situação econômica do país como um todo, como é o caso do PIB, que é representado como somatório dos valores adicionados dos segmentos produtivos de diversos setores econômicos (LUCA, 2019).

#### c) Indicadores Macro E Microeconômicos

O Produto Interno Bruto (PIB) pode ser definido como principal indicador utilizado para acompanhar o crescimento econômico de um país, região, estado, município e até mesmo de uma nação. O IBGE (2020) defende que o PIB pode ser entendido como a soma de todos os bens e serviços finais produzidos por um país. Já Paredes e Oliveira (2017) explicam sua definição como uma soma de tudo que se é produzido em um espaço geográfico em determinado espaço de tempo, podendo expressar momentos de expansão e retração. De acordo com o CEPEA (2020) o PIB do agronegócio é avaliado por quatro segmentos diferentes, são eles: insumos, agropecuária, serviços e indústria. A soma dos quatro ramos, resulta no PIB total do agronegócio.

Este importante indicador macroeconômico permite a análise do desempenho econômico e as previsões de dinamismo futuro. Em uma perspectiva contábil, podemos dizer que o cálculo da Demonstração do Valor Adicionado (DVA), se assemelha muito ao do indicador socioeconômico do PIB. A DVA, conforme defende Machado Filho (2020) é um relatório de natureza econômica, emitido pelas companhias, que visa a demonstração do valor gerado pela organização, sua finalidade é evidenciar a riqueza criada pela entidade e definir sua distribuição durante determinado período.

São justamente esses indicadores contábeis que estimulam e impulsionam o desempenho dos indicadores econômicos, no agronegócio esses dados são estimulados pelos cenários de produção, preços e custos para os *commodities* agrícolas. Pandini *et al.* (2017) conduziram uma pesquisa que corrobora com esse assunto, seu trabalho objetivou verificar o impacto das variáveis macroeconômicas nos indicadores econômico-financeiros, trabalhando com dados de 103 empresas dos setores cíclicos e não cíclicos da BM & FBovespa, listadas entre os anos de 2008 e 2015. Analisando os coeficientes, constatou-se a existência da relação diretamente proporcional do PIB com os indicadores econômico-financeiros, de forma que o aumento de uma variável está relacionado ao aumento da outra. Dessa forma, os indicadores macroeconômicos (PIB), podem ter relação direta com indicadores microeconômicos (indicadores econômico-financeiros) das empresas nacionais.

Indicadores de rentabilidade e endividamento são exemplos de indicadores microeconômicos, que podem traduzir o desempenho de empresas através de análises por meio das demonstrações contábeis. Os índices de rentabilidade podem ser definidos como indicadores que apresentam os resultados da empresa, pois calculam o rendimento dos capitais investidos, determinando se houve lucro ou prejuízo em demarcado período (ALCANTARA, 2014). Já o grau de endividamento mede o quanto de capital de terceiros a empresa está utilizando em relação a outros valores significativos do balanço patrimonial (ZANELLA *et al.*, 2020).

A seguir foram evidenciados outros estudos relacionados ao assunto, como o de Koeche *et al.* (2021), quando falam do desempenho econômico-financeiro das empresas do agro antes e após o início da pandemia, justificam que houve uma alta no valor agregado do setor, com um aumento considerável de suas receitas, bem como sua participação no PIB do país no ano da pandemia. O que corrobora com a pesquisa de Schneider *et al.* (2020), quando justificam que a pandemia possivelmente traria benefícios para o agronegócio, por meio do crescimento da demanda de alimentos, além da inserção internacional de seus produtos.

A questão da demanda de produtos agrícolas, vem em crescente alta de produção e importância na economia, é o que defendem Michels *et al.* (2018), quando defendem a importância do setor agrícola para a economia brasileira, com a entrada em novos mercados consumidores através das exportações, que são resultados de cenários favoráveis de produção (como clima e solo), acompanhado da demanda pelos produtos finais. Outro ponto que os autores defendem é a questão de o setor agro ter sido o que menos sofreu com a recessão econômica, se mostrando resiliente e forte em meio a adversidades.

### III. PERCURSO METODOLÓGICO

Para estudar as consequências do coronavírus no agronegócio brasileiro e a sua relação com o Produto Interno Bruto (PIB), este estudo desenvolve-se com a seguinte tipologia: seus objetivos caracterizam-se como descritivo, com procedimento documental, em relação ao tempo ocorrerá de forma longitudinal e aborda natureza quantitativa na análise de dados.

A coleta dos dados para a realização da pesquisa se deu por meio de planilhas em formato *Excel*, que mostram a participação em percentuais do PIB do agronegócio, desenvolvidos pelo Centro de Estudos Avançados em Economia Aplicada (CEPEA), da Escola Superior de Agricultura Luiz de Queiroz (ESALQ) da Universidade de São Paulo (USP), todos os dados estão disponíveis em relatórios periódicos no próprio site da instituição. As empresas utilizadas como população na pesquisa, é composta por 18 empresas do ramo do agronegócio, listadas no setor de consumo não cíclico da B3 S. A., a coleta das demonstrações financeiras das respectivas empresas, estão especificadas na base de dados da plataforma Economática.

O recorte longitudinal de análise dos dados foi feito entre os anos de 2019 e 2020, pois foi o espaço temporal de maior impacto que a pandemia trouxe para os indicadores estudados. A amostra analisada nesta pesquisa é caracterizada como não probabilística e intencional, uma vez que foram utilizadas empresas todas do ramo agronegócio listadas na B3 S. A. De acordo com Gil (2008), as informações não podem ser generalizadas para todas as empresas do agronegócio, mas podem prover os elementos necessários para a determinação da dinâmica do movimento.

Para se estabelecer a relação entre o índice econômico (PIB) e os indicadores econômico-financeiros das empresas do setor do agronegócio, foram utilizados indicadores de endividamento e rentabilidade. O Quadro 1 evidencia os indicadores econômico-financeiros com suas fórmulas e significados utilizados no estudo para obtenção de resultados que serão tratados posteriormente.



Quadro 1: Indicadores Econômico-financeiros Utilizados no Estudo.

Indicador	Fórmula	Significado
Índice de Endividamento Geral	$\frac{\text{Passivo Exigível}}{\text{Ativo Total}}$	Mede a proporção do ativo total financiada pelos credores da empresa.
Índice de Part.do Capital de Terceiros	$\frac{\text{Passivo Exigível}}{\text{Patrimônio Líquido}}$	Evidencia o quanto a empresa obteve de empréstimo para cada R\$ 1,00 de capital próprio aplicado.
Multiplicador do PL	$\frac{\text{Ativo Total}}{\text{Patrimônio Líquido}}$	Determina quanto dos ativos totais é financiado pelo patrimônio líquido.
Giro do Ativo Total	$\frac{\text{Vendas}}{\text{Ativo Total}}$	Indica a eficiência com que a empresa usa seus ativos para gerar vendas.
Margem Líquida	$\frac{\text{Lucro Líquido}}{\text{Vendas}}$	A margem líquida é a porcentagem de lucro líquido de uma empresa em relação a sua receita total.
ROA	$\frac{\text{Lucro Líquido}}{\text{Ativo Total}}$	O Retorno sobre o Ativo (ROA) mede a capacidade de uma empresa gerar lucro com seus ativos.
ROE	$\frac{\text{Lucro Líquido}}{\text{Patrimônio Líquido}}$	O Retorno sobre o Patrimônio Líquido (ROE) mede a rentabilidade sobre os recursos líquidos da empresa.

Fonte: Adaptado de Koeche et al. (2021); Lima (2017).

Por fim, os dados foram analisados mediante a aplicação da estatística descritiva e da Correlação Linear de Pearson ( $r$ ), que segundo Figueiredo Filho e Silva Júnior (2009) o coeficiente de correlação de Pearson pode ser definido como uma medida de associação linear entre variáveis, seu resultado pode variar entre 1 e -1. O sinal pode indicar direção positiva ou negativa do relacionamento e o valor pode significar a força de relação entre as variáveis, onde quanto mais próximo do 1 (independente do sinal) mais forte é o grau de dependência estatística linear entre as variáveis.

#### IV. ANÁLISE DOS RESULTADOS

Nessa seção é apresentada a análise dos dados obtidos por meio da base de dados do CEPEA e

Economática, considerando para tanto, o objetivo proposto pela pesquisa. Assim, a análise dos resultados foi dividida em três partes: I) Caracterização das empresas do agronegócio; II) Análise dos indicadores de endividamento e de rentabilidade; e III) PIB versus Indicadores.

##### a) Caracterização Das Empresas Do Agronegócio

Apresenta-se inicialmente a caracterização das 18 empresas do estudo. As entidades pertencentes à amostra são todas do ramo do agronegócio listadas na B3 S.A. e dividem-se quanto ao setor e segmentos, conforme evidenciado no Quadro 2.

Quadro 2: Setores, Segmentos e Empresas que Compõe a Amostra da Pesquisa.

Sector Econômico Bovespa	Segmento Bovespa	Empresas
Não Cíclico	Sucroenergético	São Martinho
	Agricultura	3 tentos
		Agribrazil
		AgroGalaxy
		Aliperti
		Boa Safra
		Brasil Agro
		Ctc S.A.
		SLC Agrícola
		Terra Santa
		Grupo Mateus
		P. Açúcar
	Alimentos diversos	Josapar
		M. Dias Branco
	Carnes e derivados	BRF SA
		Excelsior
		JBS
		Marfrig

Fonte: Dados da pesquisa (2022).



De acordo com o Quadro 2, foi analisado que a amostra está dividida em quatro segmentos, são eles: I) sucroenergéticos: representado por uma empresa, que corresponde a 6% da amostra; II) agricultura: maior representação da amostra com 11 empresas enquadradas, refletindo 61% da amostra; III) alimentos diversos: representando duas empresas, ou 11% do total; IV) carnes e derivados: segundo lugar da amostra com mais empresas, representada por 4 companhias, ou 22% da amostra.

b) *Análise Dos Indicadores De Endividamento E Rentabilidade*

Para obter e avaliar o desempenho econômico-financeiro, realizou-se a análise dos indicadores de

endividamento e rentabilidade e suas correlações com indicadores econômicos (PIB). Resultados estes obtidos por método de fórmulas matemáticas básicas realizadas por cálculos no Excel, através de fórmulas estatísticas apresentadas na metodologia.

Primeiramente, apresenta-se com base nas demonstrações financeiras das empresas da amostra, as receitas de venda de bens e serviços, fazendo um comparativo dos anos base 2019 e 2020, de acordo com a metodologia do estudo, conforme apresenta a Tabela 1.

*Tabela 1:* Receita de Venda de Bens e Serviços (valores expressos em milhares de Reais).

Empresas	Receita de vendas		Variação	
	2020	2019	R\$	%
3tentos	3112,44	2225,02	887,42	39,88
Agribrazil	1368,19	386,49	981,70	254,01
Agrogalaxy	2630,91	1443,69	1187,22	82,23
Aliperti	17,83	44,53	-26,71	-59,97
Boa Safra	588,53	404,39	184,13	45,53
BrasilAgro	448,94	348,51	100,43	28,82
BRF S. A.	39469,70	33446,98	6022,72	18,01
Ctc S. A.	246,73	179,27	67,46	37,63
Excelsior	190,86	180,15	10,71	5,94
Grupo Mateus	12397,04	8035,55	4361,49	54,28
JBS	270204,21	204523,58	65680,64	32,11
Josapar	1564,08	1218,63	345,45	28,35
M. Dias Branco	7252,52	6103,61	1148,92	18,82
Marfrig	67481,53	48761,06	18720,48	38,39
P. Açúcar	51253,00	56635,00	-5382,00	-9,50
São Martinho	3151,73	2547,59	604,14	23,71
SLC Agrícola	3873,08	3040,66	832,43	27,38
Terra Santa	1233,46	961,23	272,24	28,32

Fonte: Dados da pesquisa (2022).

Conforme demonstra a Tabela 1, as receitas de venda de bens e serviços da amostra traduzem como as empresas se saíram no ano anterior e durante a pandemia, de todas as empresas, apenas duas (11%) tiveram uma arrecadação menor que quando comparado ao ano anterior do início da pandemia. Por outro lado, 89% (16 empresas) da amostra evidenciaram uma alavancagem dos lucros, resultado de uma maior demanda dos produtos e serviços oferecidos aos consumidores. Como ratifica a pesquisa de Schneider *et al.* (2020), quando afirmam que a pandemia possivelmente traria benefícios para o agronegócio, por meio do crescimento da demanda de

alimentos, além da inserção internacional de seus produtos.

Dentre as empresas analisadas, destaque para a Agribrazil, que teve um aumento de receita em aproximadamente 254%, isso motivado por sua ascensão como empresa e alavancagem de exportações no mercado de grãos, como soja e milho, mercado esse que o Brasil é quarto lugar no mundo. Em relação as demais empresas, a JBS lidera como maior receita, seu faturamento passa dos R\$ 65 milhões, é líder do mercado de proteína animal, com elevada demanda produtiva para consumo interno e principalmente externo.

Por outro lado, a empresa Aliperti foi a que teve pior desempenho no presente estudo, isso devido a incorridos prejuízos acumulados há vários exercícios, com seu passivo circulante excedendo o capital circulante. Suas receitas são provenientes de dividendos de empresas controladas do ramo do agronegócio, o que tem mantido a continuidade das operações.

No geral, a grande maioria (89%) das empresas obtiveram crescimento de suas receitas, o que significa maiores faturamentos e como consequência, maiores lucros. Um fator que explica o motivo é a alta do dólar, pois o setor exporta suas produções, aumentando suas

receitas quando recebe em dólar e em seguida convertendo em reais. Corroborando com o CEPEA (2020), quando explica que os efeitos negativos do coronavírus sobre as exportações poderá ser balanceada com a alta do dólar ao longo do ano e com a intensificação da demanda por *commodities*.

Dessa forma, os indicadores econômico-financeiros tendem a aumentar com fortes altas no valor agregado do setor, por meio de suas receitas. É o que analisa a Tabela 2, que faz um levantamento comparativo dos indicadores de endividamento e rentabilidade das empresas do estudo.

Tabela 2: Indicadores de Endividamento e Rentabilidade.

Empresas	Índice de endividamento geral		Índice Part. Cap. de Terceiros		Multiplicador do PL		Giro do Ativo Total		Margem Líquida		ROA		ROE	
	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
3tentos	0,69	0,74	2,26	2,81	3,26	3,81	1,34	1,46	7,91	5,43	10,61	7,93	44,29	34,56
Agribrasil	0,90	0,97	9,13	32,32	10,13	33,32	5,19	8,84	1,69	0,54	8,79	4,80	169,48	300,86
Agrogalaxy	0,76	0,81	3,18	4,38	4,18	5,38	0,62	1,02	2,90	1,69	1,79	1,73	11,88	10,95
Aliperti	0,46	0,46	0,85	0,85	1,85	1,85	0,04	0,10	367,02	-41,31	13,52	-4,20	26,28	-7,85
Boa Safra	0,65	0,80	1,87	3,97	2,87	4,97	1,88	1,99	11,93	6,59	22,45	13,09	93,71	96,35
BrasilAgro	0,47	0,38	0,90	0,61	1,90	1,61	0,37	0,37	13,75	17,96	5,09	6,73	10,60	11,17
BRF SA	0,82	0,80	4,64	4,12	5,64	5,12	0,79	0,80	3,52	0,89	2,80	0,71	16,39	3,79
Ctc S.A.	0,25	0,26	0,33	0,35	1,33	1,35	0,34	0,28	19,87	15,27	6,81	4,28	9,52	5,94
Excelsior	0,38	0,41	0,62	0,69	1,62	1,69	1,28	1,49	12,28	14,91	15,74	22,18	28,65	44,43
Grupo Mateus	0,30	0,53	0,44	1,11	1,44	2,11	1,51	1,95	5,86	4,20	8,86	8,19	18,97	19,03
JBS	0,73	0,74	2,76	2,89	3,76	3,89	1,65	1,62	1,72	3,16	2,84	5,12	12,25	21,40
Josapar	0,66	0,63	1,91	1,69	2,91	2,69	0,77	0,68	2,46	1,52	1,89	1,03	5,62	2,78
M.Dias Branco	0,32	0,26	0,46	0,34	1,46	1,34	0,75	0,75	10,53	9,12	7,85	6,87	12,05	9,60
Marfrig	0,91	0,94	10,24	16,77	11,24	17,77	1,71	1,54	6,71	3,24	11,47	5,01	171,29	54,67
P. Açúcar	0,68	0,77	2,17	3,32	3,17	4,32	0,96	0,97	4,54	1,48	4,36	1,43	15,33	6,08
São Martinho	0,67	0,68	2,04	2,11	3,04	3,11	0,35	0,32	20,07	15,85	7,02	5,06	22,31	16,53
SLC Agrícola	0,63	0,57	1,73	1,33	2,73	2,33	0,45	0,44	13,19	10,36	5,95	4,53	16,66	10,90
Terra Santa	0,73	0,62	2,71	1,64	3,71	2,64	0,42	0,39	-4,61	-14,02	-1,95	-5,41	-6,58	-14,31

Fonte: Dados da pesquisa (2022).

De acordo com a Tabela 2, observa-se os indicadores de endividamento e rentabilidade, que determinam o quanto de capitais de terceiros as empresas usam para financiar suas atividades e mostram seu desempenho no período indicado.

Acerca do índice de endividamento geral, que determina a dimensão da dívida total de uma instituição em comparação ao seu ativo, percebe-se que todas as empresas são capazes de cobrir os passivos utilizando seus ativos. No comparativo entre os dois anos, 11 empresas (61%) diminuíram este índice de 2019 para 2020, demonstrando uma melhoria financeira mesmo

no ano da pandemia, pois quanto menor este índice, melhor para a companhia. Destaque para as empresas Grupo Mateus e Boa Safra, que tiveram as maiores diminuições de comprometimento de seu capital com passivos.

Em relação ao índice de participação do capital de terceiros ou índice dívida/capital próprio, que verifica a participação de capital de fontes externas para cada unidade monetária de capital próprio aplicado. Como mostra a Tabela 2, as mesmas empresas que reduziram seus índices de endividamento geral, também diminuíram a participação de capital de terceiros, com



exceção da empresa Aliperti, que manteve os mesmos índices nos comparativos dos dois anos, as demais empresas (39%) aumentaram seus índices de um ano para outro. As empresas Agribrasil e Marfrig, embora tenham diminuído seus índices, são as que mais utilizam capitais de terceiros para suas atividades, o que pode comprometer sua saúde financeira, pois os capitais próprios não são suficientes para cobrir suas dívidas.

Quanto ao multiplicador do Patrimônio Líquido (PL), índice que determina quanto dos ativos totais é financiado pelo patrimônio líquido, medindo a parte dos ativos da empresa que é financiada por ações em vez de dívida. As empresas que apresentam um alto multiplicador de PL, como a Agribrasil e Marfrig, indicam que utilizam uma maior quantidade de dívida para financiar seus ativos, ambas empresas diminuíram este índice, embora tenham continuado com um valor expressivo. Fazendo uma média das empresas em comparativo dos dois anos, temos que no ano da pandemia o índice diminuiu de 5,52% para 3,68%. Um multiplicador de PL 5, significa que o investimento no total de ativos é 5 vezes o investimento dos acionistas, ou seja, 1 parte é patrimônio e 4 partes são dívida. Já um multiplicador de PL mais próximo de 2 significa que metade dos ativos da empresa são financiados com fonte externa, e a outra metade é financiada com fontes internas.

Dessa forma, podemos notar a relação entre os indicadores de endividamento, que mostram uma dinâmica entre as empresas da amostra, por meio da diminuição de fontes de terceiros na composição das contas das empresas, refletindo assim em seus índices. No que se refere aos indicadores de rentabilidade, o giro de ativo total mede a eficiência da utilização dos ativos de uma organização para gerar receitas e lucros. De acordo com a Tabela 2, 50% das empresas tiveram diminuição do índice de um ano para o outro, sendo a empresa Agribrasil representante da maior retração. Por outro lado, 7 empresas (39%) aumentaram sua eficiência na utilização dos ativos, motivados pela maior demanda do mercado consumidor por seus produtos e serviços. As empresas BrasilAgro e M. Dias Branco mantiveram seus índices nos dois anos analisados. Vale ressaltar que o giro de ativo pode variar muito de acordo com setor e segmentos de atuação, empresas que possuem poucos ativos tendem a ter um maior giro de ativo. No entanto, indústrias que possuem uma maior demanda de capital tendem a ter esse indicador menor, o que se aplica à amostra do estudo.

A respeito da margem líquida, indicador que manifesta a porcentagem de lucro líquido de uma empresa em relação a sua receita total, o estudo mostra que das 18 empresas, 15 apresentaram uma alavancagem de um ano para outro, mostrando a força que o setor do agronegócio apresentou mesmo em meio a uma pandemia. Conforme evidencia a Tabela 2,

83% das empresas demonstraram aumento de suas margens líquidas, destaque maior para a Aliperti, que em 2019 sinalizava um indicador negativo de -41,31%, e no ano seguinte foi mensurado um aumento bastante considerável de 367,02%. Proveniente de uma de suas controladas do ramo do agronegócio que produziu e exportou diversos produtos no período estudado. Apenas a empresa Terra Santa que manteve este índice negativo nos dois anos, embora tenha apresentado uma melhoria de mais de 10% de um ano para outro.

Outro indicador que foi levado em consideração ao analisar a rentabilidade de uma companhia é o Retorno Sobre o Ativo (ROA), que indica a capacidade de uma empresa gerar lucros com seus ativos. Assim como aconteceu com a margem líquida, a grande maioria das empresas do estudo (83%) apresentaram melhorias em seus índices no ano da pandemia, sinalizando que mesmo em período de crise, se mantiveram resilientes e firmes nas suas atividades. Apenas a empresa Terra Santa, que embora tenha diminuído suas margens negativas, não conseguiu gerar lucros com seus ativos, quando uma empresa não consegue apresentar lucros, a mesma deve apelar para seus ativos e recursos próprios para manter a atividade.

Por fim, temos o Retorno Sobre o Patrimônio Líquido (ROE) medindo o poder que uma empresa tem em gerar valor com base no capital próprio que possui, demonstrando quanto uma unidade monetária aplicada pelos acionistas traz em remuneração para os mesmos. Com base na amostra do estudo, temos que 94% (17 empresas) mensuraram retornos positivos e expressivos. Com destaque para as empresas Agribrasil, Boa Safra e Excelsior, que embora tenham diminuído seus retornos, mas ainda assim apresentaram valores expressivos na aplicação de recursos próprios, sem necessitar de capitais de terceiros. A Marfrig foi a empresa de maior destaque na eficiência na aplicação de seus recursos.

Portanto, conforme Gil (2008) explica, as informações não podem ser generalizadas para todas as empresas, mas podem prover os elementos para a determinação da dinâmica do movimento. Pode-se concluir que as 18 empresas do ramo do agronegócio listadas na B3 S. A mostraram uma vantagem competitiva, bem como aumento em seu valor de mercado em relação aos demais setores econômicos. Através de seus indicadores de endividamento e rentabilidade podemos observar uma alavancagem financeira, bem como maior inserção no mercado consumidor, por se tratar de produtos e serviços caracterizados como essenciais na base alimentar social.

Dessa forma, o levantamento e análise dos indicadores corrobora com a pesquisa de Schneider *et al.* (2020), quando justificam que a pandemia traria

benefícios para o agronegócio, por meio do crescimento da demanda de alimentos, além da abertura para novos mercados internacionais. O estudo reforça ainda o que Santana (2020) defende, que mesmo com a economia em declínio, o agronegócio tem demonstrado com seus indicadores econômico- financeiros, que é um setor resistente às intempéries econômicas.

Koeche *et al.* (2021), provam o mesmo quando falam do desempenho econômico- financeiro das empresas do agro antes e após o início da pandemia,

justificando que houve uma alta no valor agregado do setor, com um aumento considerável de suas receitas, bem como sua participação no PIB do país no ano da pandemia.

### c) *Pib Versus Indicadores*

Conforme dados dos relatórios periódicos do CEPEA, da Esalq/USP, os valores monetários do PIB do agronegócio, bem como sua participação no PIB do Brasil, são evidenciados conforme mostra a Tabela 3.

**Tabela 3:** PIB do Agronegócio (valores expressos em milhares de Reais).

Período	2020	2019
PIB (R\$)	1.978.894	1.591.927
PIB (%)	26,60%	20,50%
Variação em relação ao ano anterior	+ 24,31	+ 3,41

Fonte: Dados da pesquisa (2022).

De acordo com a Tabela 3, podemos verificar a importância do agronegócio para a formação do PIB, mesmo em um ano de crises econômicas que impactaram fortemente todos os setores da economia. O setor se mostrou forte e eficaz por meio da sua participação na composição do indicador econômico, avançando 24,31% em 2020, frente a 2019, alcançando sua maior participação na série histórica, representando 26,6% do PIB brasileiro. Em valores totais, o PIB brasileiro alcançou a marca de R\$ 7,45 trilhões, sendo aproximadamente R\$ 2 trilhões provenientes dos quatro segmentos do agronegócio (insumos, agropecuária, serviços e indústria). A soma dos quatro ramos resulta no PIB total do agronegócio. Dessa forma, o crescimento e participação do

agronegócio se mostrou essencial para manutenção e desaceleração do PIB em meio a forte recuo econômico. Como confirma o estudo de Michels *et al.* (2018) e Koeche *et al.* (2021), que defendem a importância do setor agrícola para a economia brasileira, mantendo resultados positivos em meio a retrações em diversos setores econômicos. Confirmando que foi o setor que menos sofreu com a recessão econômica, se mostrando resiliente e forte em meio a adversidades.

Por fim, conforme evidenciado na metodologia do estudo, os dados foram analisados mediante aplicação da correlação linear de Pearson, buscando uma relação entre os indicadores econômico-financeiros e o indicador econômico (PIB), conforme evidencia a Tabela 4.

**Tabela 4:** Matriz de Correlação Linear.

	Receita	Índice de endividamento geral	Índice Part. Cap. de Terceiros	Multiplicador do PL	Giro do Ativo Total	Margem Líquida	ROA	ROE
PIB	0,05	-0,05	-0,16	-0,16	-0,08	0,21	0,22	0,02
p-valor	0,78	0,79	0,36	0,36	0,64	0,23	0,20	0,89

Fonte: Dados da Pesquisa (2022).

Evidenciado na Tabela 4, temos na parte superior os resultados da Correlação Linear de Pearson ( $r$ ), que buscou uma relação entre os indicadores econômico-financeiros das empresas do setor do agronegócio e o indicador econômico (PIB) e na parte inferior o p-valor, indicando o grau de associação entre as variáveis.

Para se ter uma relação entre duas variáveis, Figueiredo Filho e Silva Júnior (2009) defendem que o resultado pode variar entre 1 e -1, uma relação forte é verificada quando mais próximo do 1 (independente do sinal) o resultado for. Quanto aos critérios de interpretação, foram tomados como base os seguintes valores:  $r = 0,10$  até  $0,30$  (fraco);  $r = 0,30$  até  $0,60$  (médio);  $r = 0,80$  até 1 (forte). Em relação ao p-valor,

Ayres *et al.* (2007) contribuem que esse teste de hipótese é feito sob duas hipóteses, a primeira é  $r$  igual a zero, onde não há correlação entre as variáveis. A segunda é se  $r$  for diferente de zero, deve-se analisar o p-valor, onde  $p\text{-valor} < 0,10$  significa que os valores são significativos e tem relação entre si.

De acordo com a Tabela 4 e como esclarecido no parágrafo anterior, não foi encontrado uma correlação significativa entre os indicadores de endividamento e rentabilidade das empresas do setor agro listadas na B3 S. A. e o indicador econômico (PIB). Verifica-se que apenas 4 dos 8 pares analisados apresentaram uma correlação linear considerada como fraca. Ao mesmo tempo que o p-valor de todos os índices registraram valores acima de  $(0,10)$ , fazendo com

que os resultados não sejam estatisticamente significativos.

No entanto, é possível observar uma dinâmica de movimento com alguns dos coeficientes de correlação encontrados. Com um  $r$  de -0,16 pode-se constatar que a Participação de Capitais de Terceiros está correlacionada a um comportamento inverso do PIB. Na prática isto indica que com um aumento do PIB do agronegócio, a participação de fontes externas das empresas teria uma diminuição, corroborando com Koeche *et al.* (2021), quando fala que com a pandemia, o setor do agronegócio respondeu com alta em seu valor agregado, com isso maior participação de capital próprio.

A Margem Líquida e o Retorno Sobre o Ativo (ROA) também não apresentaram relação significativa, embora tenham sido as duas mais próximas dos parâmetros para satisfazer uma correlação. Podemos notar que ambas se correlacionaram positivamente com o PIB, trazendo a perspectiva de que com aumento do PIB, estes indicadores de rentabilidade se comportariam positivamente. Validando a pesquisa de Santana (2018) que fala da variação de índices econômicos, tais como o PIB, pode ter vinculação direta com a contabilidade das empresas da área do agronegócio.

O resultado da Tabela 4 foi divergente da pesquisa de Pandini *et al.* (2017), que constatou a existência da relação diretamente proporcional do PIB com os indicadores econômico-financeiros. Podendo ser explicado pelo tamanho da amostra utilizada no presente estudo, que considerou uma pequena quantidade de empresas do setor de consumo não-cíclico, setor esse que se mantém sem variações acentuadas mesmo em períodos de recessão econômica, pois seus produtos e serviços são considerados essenciais para o meio social.

## V. CONSIDERAÇÕES FINAIS

O presente estudo teve como objetivo identificar quais os impactos do coronavírus no agronegócio brasileiro e a sua relação com o Produto Interno Bruto (PIB). Por meio do estudo e análise de indicadores de endividamento e rentabilidade de 18 empresas do setor listadas na B3 S. A, além de um comparativo entre a participação do agronegócio na formação do PIB.

Estudos como este são de grande valia para entendermos melhor a cerca do setor que mais vem crescendo e se estabilizando no país. O agronegócio representa a maior fonte de recursos nacional, com um potencial enorme de produção e exportação de produtos, causados por aspectos que favorecem essa produção como clima e solo, além de questões logísticas.

Em meio a incertezas trazidas por uma pandemia de nível global, o setor agro se mostrou forte e resiliente em meio as intempéries e adversidades. Por meio do levantamento das receitas das empresas do setor, foi evidenciado que 89% das empresas alavancaram seus faturamentos, esses aumentos são significativos quando comparados a setores econômicos que regrediram de forma alarmante.

Portanto, os impactos da pandemia sobre o agronegócio brasileiro se mostraram benéficos, pois além do aumento da demanda de seus produtos que alcançaram recordes de produção, tiveram uma inserção internacional através de exportações para mercados consumidores líderes mundiais. Trazendo assim maiores faturamentos e como consequência, maiores lucros. Fator esse explicado com a alta do dólar, pois como o setor exporta suas produções, aumenta suas receitas quando recebe em dólar e em seguida converte em reais.

Quanto a sua representatividade sobre o indicador econômico do PIB, o setor agro se mostrou essencial para manutenção e desaceleração deste indicador em meio a forte recuo econômico. Refletindo a uma participação de 26,6% no PIB nacional, uma marca recorde na sua série histórica.

Em busca de uma relação entre os indicadores econômico-financeiros das empresas da amostra e o índice econômico (PIB), foi aplicado o método de Correlação Linear de Pearson, na sua aplicação não foram encontrados coeficientes com correlação significativa entre os indicadores. Podendo ser explicado pela limitação da amostra ser de apenas 18 empresas de apenas um setor de consumo.

No entanto, foi constatado uma dinâmica de movimento de alguns coeficientes, como é o caso da margem líquida e o retorno sobre o ativo, que apresentaram um correlacionamento positivo com o PIB, trazendo a perspectiva de que com aumento do mesmo, estes indicadores de rentabilidade se comportariam positivamente. Da mesma forma que a participação de capitais de terceiros se mostrou correlacionada a um comportamento inverso do PIB, indicando que com um aumento do PIB do agronegócio, a participação de fontes externas das empresas teria uma diminuição.

Para pesquisas futuras mais aprofundadas sobre o tema, fica sugerida uma análise com mais indicadores macroeconômicos, bem como microeconômicos, de uma maior amostra com empresas enquadradas em outros setores econômicos, além de um horizonte temporal após os impactos iniciais da pandemia, e como a economia vem retomando suas atividades normais com a vacinação em massa da população.



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# GLOBAL JOURNALS GUIDELINES HANDBOOK 2024

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## TIPS FOR WRITING A GOOD QUALITY MANAGEMENT RESEARCH PAPER

Techniques for writing a good quality management and business research paper:

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

**5. Use the internet for help:** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



**6. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

**9. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice. Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.





**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

### Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

#### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

#### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

#### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.



**Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

**Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

**Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

**Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

**Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

**What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.



**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.



**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

## THE ADMINISTRATION RULES

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

*Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.*

*Segment draft and final research paper:* You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

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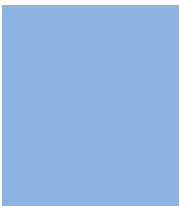


CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)  
BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	C-D	E-F
<b>Abstract</b>	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
<b>Introduction</b>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<b>Methods and Procedures</b>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<b>Result</b>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<b>Discussion</b>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<b>References</b>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring





# INDEX

---

---

## A

Affirm · 7  
Akin · 2  
Alleges · 3  
Aperture · 2

---

## B

Bias · 6  
Bosch · 4

---

## C

Concur · 4, 2  
Creditworthiness · 4

---

## D

Delve · 5, 7

---

## F

Forbidden · 2

---

## H

Halted · 4  
Hindered · 1

---

## L

Lieu · 3  
Litigation · 2

---

## P

Paradox · 5  
Perpetuate · 6  
Pivotal · 1, 5, 6  
Prompt · 4

---

## R

Realm · 4  
Rigorous · 6

---

## S

Scrutinise · 2  
Skepticism · 1, 2, 5, 1x  
Synchronize · 3

---

## T

Thriving · 6  
Tierce · 2

---

## V

Vicinity · 3  
Vulnerabilities · 3



save our planet

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