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The Impact of Artificial Intelligence

Discovering Thoughts, Inventing Future

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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.

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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.

Author: e-mail: ceo@zuoix.com

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

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.

6

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 consider-ations. 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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The Activity-based Cost Accounting System in Industrial Companies in Iraq and its Relationship to Financial Performance

By Sizar Salih Abdullah Hajani & Idris Salih Mohamad Mohamad

University of Zakho

Abstract- *Objective:* This study plans to analyse the connection between financial performance and the utilization of activity-based cost Accounting System in Industrial Companies in Iraq.

Methodology: Through a cross-sectional mail overview of finance managers, information were assembled about the financial performance of the organization, the degree of ABC utilization, and the empowering conditions that have been noted in the writing as affecting ABC viability. As of the finish of 2021, data was accumulated from 50 Baghdad shareholding organizations.

Results and Findings: The relationship between the level of ABC adoption and ABC awareness is examined using regression analysis. Furthermore, it is utilized to pinpoint the ascent in ROA, a proportion of financial performance associated with ABC activities. The discoveries show that financial managers have an elevated degree of familiarity with utilizing ABC, yet that reception of ABC is low. It is likewise found that there is a positive correlation among ABC and an expansion in ROA.

Keywords: activity-based cost accounting system; industrial companies; financial performance; ROA, correlation.

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Conclusion: To reveal the components that could propel and work with the most common way of executing ABC and recognize the snags they could experience during the execution cycle, concentrate in the Iraqis industrial area is encouraged. It would be valuable to do research to decide the parts of financial performance that are affected by drive use.

Keywords: activity-based cost accounting system; industrial companies; financial performance; ROA, correlation.

I. Introduction

There has been an observable expansion in the strain that opposition has placed on organizations in Western Europe since the 1970's and in Focal and Eastern Europe since the 1990's. Their managers have been compelled to find ever more methods to cut costs in order to stay competitive. This circumstance, however, can result in an ill-considered cost reduction without taking into account the potential detrimental influence on the business's capacity to generate value and profits. Because of this, firms are focusing more and more on cost management. When new, more advanced methodologies and techniques for cost management were developed, there were significant shifts.

A process perspective of the organisation started to gain traction in place of the traditional structure of a corporation, which tracks costs based on organisational units. This is based on monitoring company activities and processes as the actual drivers of value generation and cost growth. The idea of Activity Based Costing (ABC) or Activity Based Management (ABM) is related to this strategy.

ABC experienced a remarkable expansion during the 1980s, especially in English-speaking nations (Majerová, 2010). The results of earlier studies (Popesko, 2008) indicated that it took longer for it to become ingrained in Czech corporate practise.

The hypothetical impacts of utilizing ABC on an organization's performance have been widely examined in scholar and well known writing (e.g.(Cokins, 2001)), however it is as yet muddled whether the supposed advantages of ABC are really capable.

In the Iraq, examination into the utilization of ABC has not yet been directed on an adequately huge example, while investigation into this point has been led in different nations with fluctuating levels of progress. By showing the advantages of cost administration according to explicit exercises in our country, we can urge more companies to embrace this system and raise the financial performance of Iraq's Industrial companies.

a) The Origins of ABC and its Concepts

The making of ABC in the USA started during the 1980s as the need might arise to enhance the regular techniques for administrative accounting with a decisively situated instrument for cost control. What started as a computing technique developed into a modern strategy for dealing with an association's tasks? The formalization of the ABC precepts and the spread of ABC information were both enormously supported by the American Consortium for Advanced Management - Worldwide (CAM-I).

ABC is characterized as a "strategy that actions the cost and performance of exercises, assets, and cost objects" by CAM-I (2000). Assets are allocated to exercises, and based on how they are utilized; exercises are in this way doled out to cost objects. ABC knows about the causal connections between cost drivers and exercises."

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Any sort of thing that the director needs to cost measure is alluded to in this setting as a "cost object," including an item, client, division, division, product offering, locale, or any mix of these. While Activity Based Administration (ABM) and ABC are sometimes isolated, it is ordinarily characterized as utilizing ABC information to deal with a business.

While ordering costs by unambiguous exercises, the principal objective is to convey as precisely as conceivable the connection among costs and the reason for their development, particularly when that cause isn't a development in that frame of mind of financial results (Kral, 2010). Conventional cost places' costs are an unnecessarily agglomerated impression of the inner practices and cycles that produce them. This is the motivation behind why in ABC these cycles (and the assets utilized in them) are partitioned into exercises, every one of which has a cost related with it. The last results are then given the costs related with the tasks (cost objects).

One more massive contrast between the ABC computation model and traditional models, as well as offering an alternate point of view on the costs kept in the record is the shift from discrete utilitarian region of an association to practically reliant cycles and exercises (Staněk, 2003).

b) Benefits of an Activity-based Costing System

An increasing number of businesses worldwide are using the ABC approach. It has mostly grown as a result of the limitations of the conventional overhead charging technique. The benefits it provides are as follows (Lal, 2009):

- The ABC system centres on the circumstances and logical results relationship in the cost incurrence, which further develops exactness and dependability in item cost assurance. It recognizes that costs are brought about by exercises, not by things, and that exercises are consumed side-effects.
- The ABC approach gives more exact item costs in a high level assembling climate and innovation where backing capabilities above make up a huge piece of all out costs.
- The ABC system assists with distinguishing exercises that don't increase the value of the item and save costs by uncovering the real essence of cost conduct. By applying more command over the exercises that have prompted these decent above costs, managers can lessen many fixed above costs with ABC. This is doable because of the expanded deceivability and lucidity of how various fixed above costs act in association with exercises.
- The ABC technique utilizes various cost-based factors, most of which are exchange based instead of volume-based. To connect extra above costs to the items, ABC is likewise worried about all activities occurring inside and beyond the office.

Notwithstanding item costs, the ABC system likewise tracks costs to administrative obligation regions, business activities, clients, and offices.

c) Drawbacks of Activities-based Costing System

Generally speaking, the information provided by activity-based cost is superior to that of traditional overhead allocation. Still, it is unable to address every managerial issue. The ABC system has come under fire from the following sources (Lal, 2009); (Saxena, 2010):

- The ABC system can be more intricate than regular item costing systems since it has many cost pools and cost drivers.
- While carrying out the ABC system, a few difficulties emerge, for example, picking cost drivers, dispensing normal costs, modifying cost driver rates, and so on.
- The utility of the ABC strategy changes relying upon the association, with bigger industrial companies having the option to utilize it more actually than more modest organizations. The ABC system's capacity to give exact item costs may likewise be invaluable to organizations that depend on cost-in addition to evaluating. Nonetheless, companies who embrace market-based estimating may not be agreeable to the ABC approach. The degree of innovation and assembling climate present in different associations affects how the ABC system is applied.
- Carrying out the ABC technique takes a lot of time and cash.

d) Resources and a Range of Cost Factors

A specific task or action of work is referred to as an "activity." It could consist of a single action or a collection of numerous. Moving merchandise from workstation "A" to workstation "B," for instance. B is a task that might simply call for one action. The activity of production setup may involve a number of procedures.

- *Activities Driver:* The most dependable single quantitative proportion of how habitually and how strongly a cost object or other activity puts an expectation on an activity.
- *Work Activity:* Work carried out by personnel, tools, technology, or infrastructure. The grammar convention "action-verb-adjective-noun" is commonly used to describe activities. Activities may be assigned to one another and may take place in a linked sequence.
- *Cost Object:* Any good, service, client, contract, project, procedure, or other work unit for which a distinct cost assessment is sought
- *Resource:* A resource is a material good that is used or consumed in the course of an activity. Examples of resources used or needed in manufacturing processes include salaries and materials.

- *Driver of Resources:* The most reliable single quantitative proportion of how regularly and how seriously an asset is requested by different assets, exercises, or cost-related objects. It is utilized to distribute asset costs to assignments, cost things, or different assets.
- *Economic Resources:* Financial assets are utilized or utilized in the execution of exercises or straightforwardly support cost objects. They involve individuals, assets, things, instruments, tech, and framework.

e) *Resource Explanations and Various Cost Drivers*

A cost driver is a component that adds to or impacts a change in an activity's cost. Estimated or quantifiable degrees of cost drivers act as ideal starting point for apportioning asset costs to exercises and for distributing the cost of exercises to cost objects since they impact or connect with cost vacillations. An activity's utilization of assets or its utilization as an asset is both cost drivers.

A proportion of the number of assets that are utilized by an activity is known as an asset utilization cost driver. It fills in as the cost driver for assigning a specific activity or cost pool to which an asset cost caused by or related with an activity is doled out. The amount of merchandise in a buy or deals request, changes in item plan, the size of creation structures, and machine hours are a couple of instances of cost drivers for asset utilization.

How much an activity performed for a cost object is estimated by an activity utilization cost driver. Cost objects are given activity cost pool costs utilizing this technique. The quantities of machine hours used to deliver item X or the amount of clusters used to create item Y is two instances of activity utilization cost drivers.

- *Value-Added Activity:* Value-added activities modify a product or service's shape, fit, or functionality. The client will pay for these things.
- *Non-Value Added Activity:* Activities are referred to be non-Value Added Activities if they do not add value to the process. The customer would not be willing to pay for these operations since they do not contribute to conformity to the customer's specifications. Table 1 compares the differences between value-added and non-value-added activities.

Table 1: Value-Added Vs. Non-Value-Added

Point	Value Added Activity	Non Value Added Activity
1	Giving a customer-defined activity value	An action has no value or merit in the customer's estimation.
2	Customer wants and needs must be met.	The task does not have to be carried out in order to get results.
3	Actions add value if the consumer cares, something tangibly improves, and you complete the step correctly the first time.	It doesn't improve the worth of the service or item.
4	Clients will pay for value-added activities since they change the item or administration.	The purchaser is basically not ready to pay for it.
5	Giving a customer-defined activity value	The customer's definition of the activity is without validity or value.

II. LITERATURE REVIEW

a) *Activity-based Cost Accounting System*

(Reda Khalaf Jaber, 2022): Depicted the coordinated data that this system gives on the genuine and standard costs that are disseminated by the utilization of assets, the performance-focused activity-based costing system (PFABC) was expected to exhibit the job it plays in assessing banking performance and giving an exhaustive survey of the performance activities. The branch of Al-Rasheed Bank that deals with the electricity department was selected as the study's focus. In the theoretical and practical aspects, respectively, the researcher used the deductive and inductive approaches. His study has produced a number of findings. In comparison to the present standard accounting system used by the bank, the adoption of the (PFABC) method results in a more equitable estimate of expenses on activities. In turn, this increases the effectiveness and efficiency of the bank's performance.

(Mozan, 2022): Examined how management accounting technology affected cost reduction in Iraqi industrial enterprises. To convey financial data to different

degrees of the executives, the board accounting has formed into an intense instrument. Subsequently, the executives accounting utilizes an extensive variety of state of the art devices and methods to give organizations a competitive edge.

(Ali, 2022): Ibn Majid Co., a case study that still uses conventional accounting procedures, In order to address the deficiencies of the conventional systems, the issues they encounter, and to resolve errors in estimating product/service costs and assigning indirect costs, modern accounting systems have arisen. The study made use of the Time Driven-Activity Based Costing (TDABC) methodology and its contribution to the control process by giving precise data on the real time spent on each activity, the costs of resources that were exploited, and the exclusion of idle capacity. The researchers came to the conclusion that the use of the TDABC approach allowed for the allocation of indirect costs to be more fairly and accurately calculated, as well as the practical Capacity and the amount of time required for each activity, allowing the system to manage costs and operations.

(Mustafa, 2022): Explored how competitive pricing and accounting for resource usage play a role in achieving sustainable profitability. Structured questionnaire responses from 129 of the top 30 performing companies in Kurdistan's five industries were analysed using a PLS-SEM approach starting in 2021. The exact discoveries showed that serious estimating models with asset utilization accounting systems outflank existing energy models as far as cost determining, blunder decrease, and benefit boost. The consequences of the review showed that there is a critical expansion in the positive relationship between serious valuing and maintainable productivity the more tension asset utilization accounting puts on maintainability benefit. The discoveries of this study add to the foundation of develops and things concerning cutthroat estimating and asset utilization accounting while at the same time analysing linkages to decide the directing effect of asset utilization accounting on benefit augmentation. Due to heightening energy costs and deficiencies, energy and non-energy industrial endeavours should depend on asset utilization accounting to set cutthroat costs, increment and save their productivity, and consider already unconsidered energy estimating stochastic variables and blunders.

b)   Financial Performance

(Karem, 2022): Through a descriptive analysis of the survey that was given to Halabja Co. employees in the Kurdistan Region of Iraq (KRG)/Sulaimani city, it was possible to gain additional insight on the role of IC in organisational performance, particularly financial performance. According to the study's findings, optimising earnings and establishing a company's

competitive advantages depend significantly on the relationship between intellectual capital and financial performance. The findings suggested that the profitability and productivity of an organisation may be explained by the performance of its intellectual capital.

(Alwan, 2022): Expected to know the job that imaginative accounting plays in actuating and creating credit strategy in Iraqi banks to empower reserve funds and give liquidity by dissecting spending procedure on creative accounting apparatuses from electronic gadgets and data organizations and estimating bank credit. The examination speculation was analyzed and its targets were met by dissecting the volume of stores and liquidity in an example of Iraqi banks recorded on the securities exchange for the financial period (2018-2019-2020). The main finding of the exploration was that the use of creative accounting devices by Iraqi banks adds to lessening financial dangers by giving proper components to finish the necessary work as fast and precisely as could be expected, as well as an error in the paces of use of imaginative accounting systems among Iraqi banks because of the divergence between the potential outcomes accessible to them in Application, as most banks experience the ill effects of restricted assets. The main thing suggested by the examination is the need to enact the underpinnings of imaginative accounting through the issuance of administration decides that banks apply by shaping an administration board of trustees in which a few services and administrative bodies partake, as well as the contribution of the evaluating and control calling chamber to coordinate crafted by banks and the need to revise a few regulations, guidelines, and directions in Iraq.

(Jänkälä, 2012): Investigated the lagged impacts of ABC on small enterprises' performance. He also evaluated if small enterprises' previous financial success affects ABC adoption and if ABC use leads to future financial performance gains. The study results showed that small enterprises with appropriate financial resources and firms facing falling growth adopt ABC, which supports their growth and profitability. ABC helps small businesses.

c)   ABC's Impact on Performance

(Cagwin, 2002) and *(Krumwiede, 2006):* Tracked down a connection between ABC utilization and better financial achievement. Just when explicit rules were met did they show a direct helpful affiliation?

Not with standing, (Cagwin, 2002) found a measurably critical collaboration while consolidating ABC with other key drives. The improvement in financial performance is better when ABC is used with JIT or TQM than when an essential drive is utilized without ABC. (Barker, 2006) Accomplished practically identical outcomes four years after the fact.

As indicated by (Maiga, 2006); and (Alkhadash, 2008), taking on ABC related to other key administration procedures affects an organization's performance.

(Ittner, 2002): Found that the improvement in quality and creation times brought about by ABC optionally affected cost decrease. Three years after ABC's presentation, an English exploration (Kennedy, 2001) found that it straightforwardly affected financial performance. The most remarkable improvement happened in the earlier year, which may be credited to the ABC system's intricacy and the drawn out time span required for its full execution.

d) Research Gap

The study mentioned revealed the following research gap.

- Since the Industrial Companies does not use the activity-based costing approach, we chose Industrial Companies of Iraq and the methods they use.
- There are no available particular Industrial Companies of Iraq.
- Since cost activities and cost drivers are not determined in the Industrial Companies of Iraq for determining the cost of each service, this study will enable the Industrial Companies of Iraq to determine the precise and appropriate cost of various activities with precise cost drivers.
- Currently, the cost of any services offered by the Industrial Companies of Iraq and determined by cost management may be greater, therefore with the use of activity-based costing, expenses are decreased by giving cost management useful information. Making the appropriate choice is aided by it.

e) Objective of the Study

- To Examine the Adoption of ABC system in industrial shareholding companies in Iraq.
- To assess the relationship between the Adoption of ABC System in industrial shareholding companies and the level of Knowledge of ABC System in Finance Managers.

f) Research Question

1. According to financial managers' perspective, how extensively is the ABC system used in Iraqis industrial shareholding companies?
2. Is there a connection between the ABC's adoption and the finance managers' knowledge with it?
3. Is there a connection between Iraqis industrial shareholding companies' profitability and their adoption of the ABC?

III. Research Methodology

a) Study's Population

One of the economic sectors that Iraq is thought to need to enhance to attain better economic growth is the industrial sector (Central Bank of Iraq, 2007). Three industries- manufacturing, electricity generation, and mining- are the foundation of the economy. These three industries are primarily made up of privately held, small- to medium-sized businesses (Hutaibat, 2005). For the year 2005, the industrial sector's overall contribution to the GDP of Iraq was around 17%. The value of industrial exports in the same year was around 2,379 JD million (1 JD = £1). Around 93.5% of all exports were from the industrial sector. There were 21,000 industrial establishments in all, employing more than 173,000 people. Approximately 48% of Iraq's workforce is represented by this statistic (Ministry of Planning Report, 2007).

Due to Iraq's membership in the World Trade Organization (WTO) and the signing of numerous free-trade agreements, it had become a favourable environment for the growth and expansion of its industrial production by the beginning of the 1990's (Central Bank of Iraq, 2007). The manufacturing production index for the nation was 77%, the mining production index was 15%, and the power production index was 8% (Goussous, 2002) After Iraq joined these international organisations, it became urgently necessary to expand all of the country's economic sectors, particularly the industrial sector, in order for it to function effectively in a free market economy (Ministry of Planning Report, 2007).

By 2006, the industrial area had expanded to practically 21% of Gross domestic product, thanks to a great extent to the USA-Iraq International alliance (endorsed in 2001 by the US Senate). 13 qualified industrial zones (QIZs) were made cross country because of this understanding (Service of Arranging Report, 2007). Most of the merchandise delivered by the QIZs, which offer obligation free admittance to the US market, is light industrial products, especially instant apparel. As per a 2007 report from the Service of Arranging, the commodities from the QIZs stretched around US$1.1 billion out of 2006. It is guessed that administration accounting methods would adjust as additional worldwide enterprises lay out joint endeavours or local workplaces in Iraq. The requirement for Iraqis organizations to take on cost accounting advancements to all the more actually contend will be the main thrust behind these changes.

b) Data Collection

1. *Primary Data:* The primary data were gathered through the administration of questionnaires assisted by in-person interviews. The survey was formatted using a 5-point Likert scale. Five options

were provided: extremely large, large, medium, little, and very little.

2. *Secondary Data:* Iraqis industrial shareholding companies that were recorded on the Baghdad Stock Trade toward the finish of 2021 made up the review's populace. 50 organizations were remembered for aggregate, and calls were put to each recorded industrial business to figure out which organizations utilized the ABC. These businesses were chosen as the study's field of study for two reasons:

- One of the main sectors listed on the Baghdad Stock Exchange is the industrial firms sector.
- The Baghdad Stock Exchange has a wealth of information regarding the industrial shareholding businesses.

c) Tools for used Data Collection

To gather information regarding the current state of ABC implementation, a survey instrument was created. A phone contact was placed to each organisation to find out who would be most suited to complete the survey as part of a strategy to create an accurate mailing list and achieve a high response rate. These were frequently the chief financial officer, chief controller, or chief accountant. Most of the time, the manager in question was approached and informed of the study's goal. A copy of the survey along with a dictionary of terms was included in the survey package that was shipped out. A cover letter outlining the goals of the study was also included.

The survey asked questions regarding the respondent's age, education, position in the organisation, and experience. Additionally, respondents were questioned about their experience with ABC, the cost systems already in use in their organisations, and the procedures followed when applying overheads. Each question is carefully worded to ensure that it covers just one idea in a clear, succinct manner. The purpose of the study's questionnaire is to gauge how much the industrial enterprises are implementing the ABC initiative, how much the financial managers value such use, and how well-versed they are in ABC.

The following are the Questionnaire's Primary Sections: The respondents and their companies are asked a series of demographic questions in Part One. The second part of the survey aims to determine how frequently and how seriously respondents view the ABC. The third section tries to gauge how knowledgeable financial managers are with ABC. It is important to note that the Likert scale was used to measure the degree of agreement while answering the questions in sections two and three. In order to gauge the range of replies, five options were provided: extremely large, large, medium, little, and very little. Additionally, data from 2021 annual reports was gathered to assess the relationship between the ROA and the level of financial performance.

d) Tools used for Data Analysis

The current study utilized descriptive statistical analysis, like the mean and standard deviation, to examine the information and test the speculations. Moreover, simple regression analysis was utilized to test the connection between the level of ABC use commonality and the level of execution of this drive. Furthermore, it is utilized to evaluate whether utilizing ABC has further developed ROA as a proportion of financial performance.

IV. Result and Discussion

An explanation of the examination of the sample characteristics is provided in the study's subsequent section.

a) Reliability

Table 2: Cronbach's Alpha Value

Reliability Statistics	
Cronbach's Alpha	N of Items
.756	8

We can analyse the qualities of measuring scales and the parts that make up the scales utilizing reliability investigation. As well as giving information on the relationships between the scale's constituent items, the reliability analysis makes an assortment of routinely utilized scale reliability measures. The most frequently utilized mark of interior consistency is Cronbach's alpha. We can see (table 2) that the Cronbach's alpha for this specific example of information is 0.756, showing an elevated degree of internal consistency for our scale.

b) Sample Adequacy

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.851
Bartlett's Test of Sphericity	Approx. Chi-Square	540.239
	df	10
	Sig.	.000

KMO is a test used to assess how well the parts make sense of each other concerning incomplete relationship between's the factors. KMO values around 1.0 are amazing, while those underneath 0.5 are

considered unsuitable. Most scholastics presently fight that factor examination can start with a KMO of no less than 0.80. In table 3 our result gave us a KMO esteem of .851. This recommends that there is a huge level of data cross-over or a high incomplete connection among the factors. Consequently, performing factor analysis is sensible.

Table 4: Demographic Profile of Respondents

		Frequency	Percentage
Position	Financial manager	50	100%
Age	Less than 25 Years	5	10%
	25-40 Years	14	28%
	41-55 Years	18	36%
	55 years and above	13	26%
Educational Status	12th or Below	2	4%
	Graduate	40	80%
	Masters	8	16%
Years of Experience	Less than 5 years	5	10%
	6-10 Years	10	20%
	11-15 Years	20	40%
	16 years and above	15	30%
Total		50	100%

According to Table 4, 100% of respondents identified as financial managers. Additionally, it shows that the minimum proportion (10%) of respondents have less than five years of experience, while the largest percentage (40%) of respondents fall into the group of (11–15) years of experience. Because of this, the study sample's financial managers tend to have advanced levels of experience. It also shows that (18 out of 50) respondents (36%) were classified as being between the ages of 41 and 55, and (10%) as being under the age of 25. (i.e., 5 out of 50). Additionally, it demonstrates that nearly 16% of the respondents have master's degrees.

Table 5: Investigation of Firms' Characteristics

Cost accounting methods	Frequency	Percentage
None	3	6%
Standard Costing	12	24%
Job Order Costing System	11	22%
Process Costing System	20	40%
ABC	4	8%
Total	50	100%

As per Table 5, which records the essential cost accounting techniques being used, 6% of the industrial Iraqis shareholding organizations just use a manual financial accounting system and have no records for any cost estimations. Furthermore, 24% of these organizations use standard costing to decide the cost of their items and use tact to value their work-in-progress stock toward the finish of the financial month without having a system set up to follow real costs. With a joined extent of 60, the two primary cost accounting procedures are work request costing systems and cycle costing systems. The level of Iraqis organizations that use the ABC approach for cost computation is 8%, yet it isn't generally taken on. Thus, it is vital to take note of that most of organizations use costing systems.

Table 6: Cost bases for Overhead

Bases of Cost Driver	Frequency	Percentage
Direct Hours	5	10%
Machine Hours	2	4%
Direct Material	5	10%
No. of Units	22	44%
Direct Hours and Machine Hours	2	4%
Direct Hours and no. of Units	4	8%
Machine Hours and no. of Units	2	4%
None	3	6%
Use all of them	5	10%

Additionally, data is gathered to determine the most typical bases for applying overhead to cost items. According to Table 6, the highest percentage (44%), which was based on the quantity of units, was used by 20 different companies. Furthermore, eight additional organizations likewise involved the quantity of units as a base related to different bases like direct hours and machine hours.

For each of the research questions, the findings are presented below.

1. According to financial managers' perspective, how extensively are Iraqis industrial shareholding businesses using the ABC system?

As found in Table 5 preceding, 8% of the associations being scrutinized referenced utilizing the ABC system. The accompanying Table 7 shows the ABC execution level based on the classes from Brown et al. (2004).

Table 7: ABC Level

	Frequency	Percentage
ABC is an unknown entity. And the management either uses different costing techniques or uses none at all.	27	54%
Although ABC is known and might be implemented, it has not yet received approval.	11	22%
The ABC has been approved for implementation, but analysis has not yet started.	5	10%
The ABC execution group is attempting to characterize the venture's objectives and degree, assemble information, as well as examine the activities and cost-drivers.	1	2%
The ABC execution group is attempting to characterize the task's objectives and degree, accumulate information, and additionally break down the activities and cost-drivers.	1	2%
Investigation has been finished, and the ABC model has been carried out, however ABC information has not yet been utilized for decision-making beyond the accounting division.	5	10%
Total	50	100%

According to Table 7, 54% of the respondents had some familiarity with the ABC ideas. 22% of the sample is now debating whether to put the ABC system into place. Only 10% of respondents agreed that the ABC system was necessary, and it is not yet in operation. In 2% of the responders, applying the ABC approach is the first step in the analytical process. Six companies, or 2% of the respondents, presently use the ABC approach.

Thus, this study arrives at the conclusion that the pace of ABC dissemination in the Iraqis industrial areas is roughly 15% (10% of the ventures had completely embraced the ABC system + 5% of them were currently doing as such). Developing interest in the ABC's application has been seen in Iraq. (Al-Khadash, 2006) noticed that among Iraqis finance managers; comprehension of the meaning of executing ABC is seen to be apparently high. As per (Al-Khadash, 2006), this proof backings and makes sense of the ascent in information on ABC execution in the Iraqis industrial area during the beyond six years.

2. Is there a connection between the ABC's adoption and the finance managers' knowledge with it?

The reason for this part is to decide if the ABC execution and finance managers' aptitude with ABC are connected in any capacity. It could be guaranteed that assuming managers are adequately acquainted with and mindful of the value of utilizing such a drive, their degree of training will be higher than in a circumstance where there is a lesser level of mindfulness. As a result, the following regression model is estimated in order to assess research question number three:

$$ABCit = a + AABCit + eit \qquad (1)$$

Where, ABC it means how much the ABC is being taken on (the dependent variable, it, is assessed utilizing a yes/no two-point scale).The independent factor, it, is estimated utilizing a Likert-type scale with five being "very familiar" and one being "not at all familiar not by any stretch of the imagination natural." The abbreviation ABC it represents the financial managers' knowledge of the meaning of embracing the ABC.

It represents the regression model's unaccounted-for mistake. The proposed regression model was critical at the level of. 05. This is shown in Table 8. This finding shows that the degree of ABC reception in Industrial Iraqis Shareholding Companies is associated with financial managers' knowledge of the ABC. A normal clarification for such outcomes may be that while financial managers are know all about the ABC and adequately mindful of the significance of

utilizing the ABC drive, they impact the leaders to make a genuine move toward embracing this drive. This outcome demonstrates that an elevated degree of commonality and mindfulness with the ABC drive is related with a genuine act of the drive.

Table 8: Financial Managers' ABC Knowledge and Implementation

Model	Adjusted R²	F	Sig.
Regression model 1 (ABC)	.236	5.022	0.036

3. Is there a connection between Iraqis industrial shareholding companies' profitability and their adoption of the ABC?

By estimating the regression model shown below, the third research question is tested:

$$ROA_{it} = ABC_{it} + e_{it}, \qquad (2)$$

Where, ROA$_{it}$ is the dependent variable's (the ROA utilised) change in return on assets. It displays the stage of ABC adoption (the independent variable). It stands for the regression model's unaccounted-for error.

The findings of the association test are based on the data in Tables 9 and 10, which reveal dmonstrates a considerable connection between financial success and the degree of it might be claimed that the extent to which the ABC is used has a favourable impact on the financial results. This supports the findings of the other investigations which discovered a strong correlation between using management initiatives and a boost to financial results.

Table 9: Regression Model

F	162.36	
p-value	0.000	
R²	0.789	
Adjusted R²	0.742	
Coefficient (Dependent variable: ROA)	T	Sig.
(Constant)	5.366	.000
ABC	2.365	.035

Table 10: Correlation Matrix

	ROA	ABC
ROA	1.00	
ABC	.326*	1.00

Notes: *Significant at α = 0.05 **Significant at α = 0.01

c) Discussion

Overall, this study provides empirical evidence for the activity based cost accounting theory in Iraq Country. These data imply external variables affect activity based cost accounting adoption and activity based cost accounting implementation affects company performance. This study's decisions have hypothetical implications. The current review's outcomes give exact proof for vulnerability, portrayal, and human science

hypothesis, which proposes a reason impact interface between outside factors, cost control systems, and financial performance. This study adds to how we might interpret outer impacts, activity based cost accounting reception, and company's financial performance.

This study approves the outside factors based "intercession" idea by demonstrating activity based cost accounting's impressive intervening impact on outer factors and company performance. This investigation discovered that precise data provided by activity based cost accounting execution further develops business performance, which is viable with (Aldukhil, 2012) "intervention" model of the Cartesian-possibility strategy. The outcomes are reliable with the perspective on past Mama specialists e.g., (Alsayegh, 2020); (Elhamma, 2015); (Fei, 2010) that the more possibilities, the higher the requirement for refined SMA that can give managers top notch data to pursue sensible and exact choices so associations can upgrade their general objectives.

The paper gives useful commitments to applying activity based cost accounting and supporting financial performance. This exploration recommends that the utilization of activity based cost accounting systems by Iraqis Industrial Companies is connected to natural vulnerability and market direction. Activity based cost accounting systems' non-financial and financial advantages will help fabricating leaders and managers to go with fruitful choices, working on the financial and non-financial performance of Iraqis Industrial Companies. This finding is significant for activity based cost accounting research. Activity based cost accounting hypothesis execution has qualities of any data system that covers the organization's Financial Performance.

V. Conclusion

This study looked into how using ABC led to an improvement in financial performance. In affluent nations, there has been a lot of research done on ABC adoption. There has been little research on these topics in Jordan generally or in the country's industrial sector particularly. To assess the degree of ABC adoption, a quantitative methodology was used. Following the utilization of optional information to decide if the financial managers of the industrial Jordanian shareholding companies know about the significance of utilizing the ABC and whether such an essential drive is related with an improvement in financial performance in the assembling area, each stage for each organization was resolved utilizing an individual poll study. The accomplishment and improvement of financial benefit is the fundamental goal of the organization (Chenhall, 1998), and it is essential for organizations to have experimental confirmation of the progress of vital endeavours. The underlying finding was that the pace of ABC dispersal in the Jordanian industrial area is very

great. 15% is the dispersion rate. The subsequent revelation is that utilizing the ABC all the while brings about profitable collaboration. The observational information shows that financial managers have an elevated degree of information on the value of utilizing the ABC. Moreover, it is found that the utilization of ABC is firmly decidedly connected with an improvement in financial performance. This outcome is in accordance with explores' cases that administration accounting systems ought to be valuable in helping organizations' functional achievement (Granlund, 1998); (Dorman, 1996); (Granlund M., 1997). Drives' fundamental objective is to build this adequacy, and ABC is doing its part to do as such.

Limitation and Future Scope

However, this study has several odd flaws, just as some earlier academic studies. The way that this examination exclusively utilizes the essential wellspring of information got by means of a cross-sectional approach is one of its drawbacks. To additionally investigate the effect of outer elements on ABC and firm performance, future scientists might consider a longitudinal examination plan in which financial and non-financial records of associations when the execution of ABC can measure up. In any case, we just view these as interesting inquiries for future examination.

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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

IMPACTSOFTHECORONAVIRUSONBRAZILIANAGRIBUSINESSANDITSRELATIONSHIPWITHTHEGROSSDOMESTICPRODUCT

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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 [α] & Jocycleber Meireles de Souza [σ]

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 *Econômática*. 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.

I. 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 demostra 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 doagronegócio (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 orepresentativo 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 quemmantém 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 oagronegócio 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 naoferta 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 comoos 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 comprae 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 diminuíram 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 evidenci-am 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 Demon-stração 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 suadistribuição 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 macro-econômicos (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 relaçãocom 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), todosos dados estão disponíveis em relatórios periódicos no próprio site da instituição. As empresasutilizadas 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, poisfoi 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 domovimento.

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 EndividamentoGeral	$\dfrac{Passivo\ Exig\acute{\imath}vel}{Ativo\ Total}$	Mede a proporção do ativo total financiada pelos credores da empresa.
Índice de Part.do Capital de Terceiros	$\dfrac{Passivo\ Exig\acute{\imath}vel}{Patrim\^onio\ L\acute{\imath}quido}$	Evidencia o quanto a empresa obteve de empréstimo para cada R\$ 1,00 de capital próprioaplicado.
Multiplicadordo PL	$\dfrac{Ativo\ Total}{Patrim\^onio\ L\acute{\imath}quido}$	Determina quanto dos ativos totais é financiado pelo patrimônio líquido.
Giro do AtivoTotal	$\dfrac{Vendas}{Ativo\ Total}$	Indica a eficiência com que a empresa usa seus ativos para gerar vendas.
MargemLíquida	$\dfrac{Lucro\ L\acute{\imath}quido}{Vendas}$	A margem líquida é a porcentagem de lucrolíquido de uma empresa em relação a sua receita total.
ROA	$\dfrac{Lucro\ L\acute{\imath}quido}{Ativo\ Total}$	O Retorno sobre o Ativo (ROA) mede a capacidade de uma empresa gerar lucro comseus ativos.
ROE	$\dfrac{Lucro\ L\acute{\imath}quido}{Patrim\^onio\ L\acute{\imath}quido}$	O Retorno sobre o Patrimônio Líquido (ROE) mede a rentabilidade sobre os recursos líquidosda 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, ondequanto mais próximo do 1 (independente do sinal) mais forte é o grau de dependência estatísticalinear 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.

Setor EconômicoBovespa	Segmento Bovespa	Empresas
Não Cíclico	Sucroenergético	São Martinho
	Agricultura	3 tentos
		Agribrasil
		Agrogalaxy
		Aliperti
		Boa Safra
		BrasilAgro
		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
Agribrasil	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 Agribrasil, 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 suaparticipação 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 indicadoreseconômico-financeiros e o indicador econômico (PIB), conforme evidencia a Tabela 4.

Tabela 4: Matriz de Correlação Linear.

	Receita	Índice de endividam ento geral	Índice Part. Cap. de Terceiros	Multiplic ador 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 dePearson (*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, indicandoo 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 maispróximo 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- 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), fazendocom

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 coma 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 deforma 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 inicias da pandemia, e como a economia vem retomando suas atividades normais coma vacinação em massa da população.

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3. Ensure corresponding author's email address and postal address are accurate and reachable.
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7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

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- Findings
- Writings
- Diagrams
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- Illustrations
- Lectures

- Printed material
- Graphic representations
- Computer programs
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- Any other original work

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

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Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.

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It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

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The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

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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.

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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 though 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:
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- 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:

o Single section and succinct.
o An outline of the job done is always written in past tense.
o Concentrate on shortening results—limit background information to a verdict or two.
o 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:

o Explain the value (significance) of the study.
o 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.
o Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
o 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:

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

What to stay away from:

o Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
o Do not include raw data or intermediate calculations in a research manuscript.
o Do not present similar data more than once.
o A manuscript should complement any figures or tables, not duplicate information.
o 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.

o You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
o Give details of all of your remarks as much as possible, focusing on mechanisms.
o 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.
o 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?
o 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

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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.

Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.

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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	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
Introduction	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
Methods and Procedures	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
Result	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
Discussion	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
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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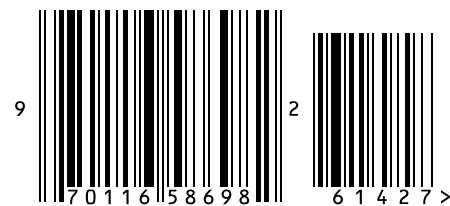Tierce · 2

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