

# Globalization and IT Governance in Co-Operative Sugar Industry

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## ABSTRACT

Globalization and IT governance in the cooperative sugar industry bring substantial opportunities and challenges. Implementing robust IT governance mechanisms is crucial for enhancing operational efficiency, safeguarding data, ensuring compliance, and accessing global markets. This governance framework supports improved decision-making, transparency, and effective supply chain management while protecting sensitive information and adhering to varying regulatory standards across different regions. As globalization redefines the competitive landscape, cooperative sugar enterprises must adopt agile and accountable IT governance practices to integrate new technologies and maintain a competitive advantage. Investing in IT governance as a strategic asset is essential to leverage the benefits of globalization and manage associated risks. Future research should focus on how evolving IT governance models can adapt to new technologies and changing global dynamics, thus securing the industry's resilience and competitive position.

## 1. INTRODUCTION

The sugar industry has been significantly impacted by globalization, marked by increased interdependence among economies, societies, and cultures worldwide. This transformation has been propelled by the liberalization of trade policies, advancements in transportation and communication technologies, and heightened foreign direct investment. Globalization has also brought attention to environmental and social issues in sugar production, prompting the need for sustainable practices. Information technology (IT) has played a pivotal role in overcoming geographical barriers and enhancing efficiency within the industry. Thus, IT governance becomes crucial in ensuring that IT strategies align with overall business objectives, mitigate risks, and comply with regulations across global operations. Effective IT governance involves formulating policies to protect data, guiding strategic decision-making, and fostering innovation and stakeholder confidence within the cooperative sugar industry, ultimately enabling organizations to navigate the complexities of the globalized business landscape.

## 2. LITERATURE SERVEY

The rise of e-commerce has empowered individuals across the globe to compete in international markets, effectively breaking down barriers related to language, culture, physical distance, and national borders. This transformation is possible because products, services, and transaction processes can be redesigned to

meet the demands of changing business environments. E-commerce has progressed from basic email and electronic data interchange systems to sophisticated, web-based interactive platforms. The future of e-commerce is brimming with potential, limited only by our || imagination. Despite protectionist trade policies in the USA and other countries, globalization is anticipated to thrive due to its vast economic benefits. The internet and e-commerce have steadily dismantled barriers, fostering globalization and enhancing international trade. Organizations such as the World Trade Organization (WTO) are working on policy and regulatory issues within the e-commerce sphere to support the vision of globalization. This paper examines the evolution of e-commerce and globalization, reflecting on the past, assessing the present, and contemplating future possibilities. [1] The ascent of e-commerce has reshaped the global competitive landscape by transcending traditional barriers such as language, culture, geography, and national boundaries, empowering businesses to adapt swiftly to market shifts. From its nascent stages rooted in basic technologies like email and electronic data interchange, e-commerce has evolved into sophisticated web-based platforms, with innovation fuelling its future trajectory. Despite protectionist trade policies in certain regions, globalization persists due to its substantial economic benefits, with the internet and e-commerce platforms serving as vital enablers of international trade. Institutions like the World Trade Organization (WTO) are instrumental in navigating regulatory challenges to foster a more integrated global economy. Businesses increasingly capitalize on the advantages of rapid product launches facilitated by e-commerce, driving a shift towards deeper IT integration and globalization strategies. Effective IT implementation requires significant infrastructure changes and improvements in product quality and customer service, reflecting the rising educational standards and heightened consumer expectations. Case studies underscore the indispensable role of IT in driving business growth, emphasizing the need for clear productivity metrics and enhancements in reliability and customer satisfaction. [2] Technology-driven organizations in the USA are experiencing a significant increase in revenues from global markets. Their technological value chains now extend well beyond national borders and cultural boundaries. This expansion necessitates collaboration among individuals from diverse cultural backgrounds. This paper explores the international challenges associated with this trend and outlines the requirements for building high-performing teams in such a global context. [3] The rise of globalization has driven businesses to rethink their organizational strategies, including their coordination and control systems, management processes, and structural organization, all while utilizing technological advancements. Maintaining competitiveness in both domestic and international markets necessitates effective coordination of operations globally, as collaboration across diverse and geographically dispersed entities is often essential for market and product innovation. Despite these efforts, many global firms struggle with aligning their evolving IT architecture with their broader business strategies. For general managers, understanding the administrative options available is crucial for developing an effective IT infrastructure strategy. This paper explores the challenges senior executives face in adapting control and organizational structures to meet the demands of a global business environment and aligning them with IT management strategies. [4] "The research investigates the impact of globalization on the responsibilities and functions of faculty members within engineering universities. It underscores three key functions that professors fulfill within the framework of globalization: teaching, research, and administrative tasks. These faculty members encounter a range of obstacles that necessitate institutional interventions and partnerships with both industry and national initiatives." [5] "The transformation brought about by globalization, the dissolution of the Cold War, and the increasing participation of non-state entities in global affairs have fundamentally altered power dynamics, hastening the integration of national economies

and fostering policy harmonization across various sectors. This assessment delves into the current state of global governance, examining diverse governance frameworks, identifying key challenges posed by the globalized landscape, and exploring potential avenues for future governance. Present global governance structures prioritize adaptability over rigidity, endorse voluntary measures over obligatory mandates, and emphasize collaborative partnerships over individual actions. This overview of global governance trends investigates the roles of sovereignty and ongoing struggles for power and fairness in shaping international relations and governance modalities. It suggests that elements such as individual empowerment, heightened awareness of human security concerns, the intricate nature of institutional frameworks, shifts in global power dynamics, and the prevailing liberal international political order will dictate the future trajectory of global governance. This article is part of a themed series dedicated to exploring global governance." [6] "Over the past two decades, globalization has emerged as a powerful force shaping the global economy, driving significant economic growth, fostering increased trade flows, and lifting millions of people out of poverty. The collapse of the Berlin Wall ushered in a new era characterized by the fusion of free-market principles and political democracy, a vision championed by intellectuals such as Francis Fukuyama and Thomas Friedman. Initially hailed as a harbinger of a seamlessly integrated global economy, globalization has instead given rise to diverse forms of capitalism, sparking intense competition among them. This has propelled globalization into uncharted territory. While market forces continue to play a crucial role, the economic landscape is fraught with uncertainties and risks. The events of 2007, including the financial crisis, escalating oil prices, and global food shortages, underscored the inherent volatility of the economic environment. The efficacy of global institutions like the G8 came into question, particularly as they convened without key stakeholders such as India, Brazil, Saudi Arabia, and China to address critical issues such as food security, energy, aid policies, and climate change. Against this backdrop, the forthcoming World Policy Conference in Evian, France, in October 2008 assumes heightened significance. Economic deliberations will dominate the agenda, focusing on the state of the global economy, the trajectory of globalization, and potential policy responses. [7] The cooperative sugar industry has adopted a highly intricate ERP system to manage various operations, similar to other process industries. However, implementing an ERP within the cooperative sector presents unique challenges due to its cultural context. This study aims to explore the underlying reasons for these challenges. The effectiveness of ERP, particularly in terms of governance, is the primary focus of the recent research. The cooperative sugar industry in Maharashtra serves as a pioneering field in the realm of IT applications and automation. From basic software like MS Excel to advanced Sugar ERP systems, automation in the cooperative sugar industry is thoroughly examined. Implementing an ERP solution entails significant time and financial investment across any sector. While ERP has yielded favourable outcomes in many industries, others have faced implementation failures. Therefore, careful navigation of the transformative impacts of ERP adoption is essential for reaping its benefits in the sugar industry. [8] This research investigates how sugar mills in Haryana are faring, with a close examination of their economic performance in terms of factors like land use, sugar production, and operational efficiency. The focus is specifically on the sugar mills situated within Haryana. By analysing trends from 2010-11 to 2020-21, the study aims to provide insights crucial for policy-making. Over the past decade, there has been a notable improvement in sugarcane cultivation within the region, indicating a sustained upward trend. The commendable growth and operational success of Haryana's sugar mills can be attributed, in part, to supportive government policies and advancements in technology, both locally and globally. These combined influences have contributed to the overall positive trajectory of the sugar industry in Haryana."

[9] "In collaboration with local government, food security, fisheries, and agriculture services are dedicated to enhancing community welfare. Leveraging information technology (IT) is integral to achieving these objectives. Thus, a robust IT governance design becomes imperative to align governmental aims with IT utilization effectively. The absence of a comprehensive assessment of IT governance design prompted this research endeavour. Employing the COBIT 2019 framework, we conducted an analysis and crafted IT governance designs tailored for government agencies. Through a descriptive qualitative approach, interviews with key governmental stakeholders were conducted. This exploration uncovered vital processes within domains such as EDM04, APO04, APO07, APO08, APO11, BAI03, BAI08, and BAI10. These findings not only illuminate the existing state of IT governance but also set the stage for further enhancements, ultimately serving the interests of our community.[10] In today's data-driven industrial landscape, effective master data administration stands as a critical determinant of operational efficiency versus conjectural decision-making. This study explores Master Data Management (MDM) within the Agtech and Manufacturing industries, recognizing its pivotal role in enhancing productivity and competitiveness. Integrated MDM governance promises significant advancements in both sectors, as precision farming and IoT innovations in Agtech, along with the complexities of data management in Manufacturing, necessitate tailored frameworks. For Agtech, the proposed methodology addresses unique challenges in data collection, crop management complexities, and interconnected procurement networks, empowering organizations to harness data-driven insights while ensuring precision and consistency. Similarly, within Manufacturing, customized frameworks emphasize standardization, quality control, and efficient interconnectivity, fostering a culture of meticulous data management and alignment with broader organizational objectives. This paper presents a comprehensive methodological framework encompassing evaluative research design, regulatory compliance, stakeholder engagement, dataset analysis, quality assurance protocols, and adaptive leadership strategies, showcasing the effective application of Enterprise Multi-Domain Mastery (EMDF) frameworks in addressing modern data management challenges.[11] In India, the agro-based sector is like the backbone of our nation, intertwining the growth of agriculture and industry. Among these sectors, the sugar industry holds a special place, akin to the sweetness it brings to our lives, ranking as the second-largest after textiles. India's love affair with sugar is legendary; we're the world's biggest consumers, just trailing behind Brazil. But amidst our sugar highs, there were tough times, like during the Great Recession of 2007-2009. This study isn't just about numbers on a page; it's about understanding the heartbeat of the sugar industry, its ups, downs, and resilience. Over 24 years, from 1993-94 to 2016-17, we're diving deep into five vital aspects: the number of factories, the people behind them, the investments made, the profits earned, and the value added to our economy. We're splitting this journey into two chapters: life before the recession, from 1993-94 to 2007-08, and life after, from 2008-09 to 2016-17. Through this journey, we'll not just crunch numbers but feel the pulse of the industry, its struggles, and its triumphs. And by the end, we'll uncover the tale of resilience, of how the sugar industry weathered the storm and emerged sweeter and stronger than ever before. [12] The paper dives into a journey through reports from various committees spanning nearly four decades, from 1974 to 2013, all focused on the intricate workings of India's sugar industry. It's like unravelling a story, where each committee report plays a role in shaping the sector's destiny. These reports have long echoed the need for partial regulation, a call eagerly awaited and championed by policymakers and committee leaders alike. Since 2013, there's been a chorus of voices advocating for some degree of deregulation, a shift with profound implications. While the government maintains a tight grip on the sugar trade, the idea of loosening some reins is seen as both a challenge and an opportunity. This study delves deep into the consequences, foreseeing a potential rise



in industry debt as a result. But amidst the pages of reports and policy debates, there's a clear thread running through—the struggles faced by the sugar sector aren't just about economics; they're about policies failing to keep up with the sector's needs. It's a tale of missed opportunities and misplaced priorities, where state interventions often fall short of expectations. Yet, there's hope in the air, a call for a rethink of how the state intervenes, urging for a more thoughtful approach that considers both needs and outcomes before charting the course ahead for the sugar industry. [13] Maharashtra isn't just a state; it's a powerhouse of agriculture and industrial prowess in India. And within its vibrant landscape, the sugar industry stands tall, a testament to its rich history and constant innovation. From age-old practices to cutting-edge advancements, Maharashtra's private sugar industry paints a picture of resilience and evolution. It's not just a local affair; it reverberates across the nation, shaping the rural economy and contributing significantly to India's sugar production. This study sets the stage for a deeper dive into the challenges and potential of Maharashtra's private sugar business. In the upcoming sections, we'll unravel the complexities of the market, dissect the impact of policies, and explore the technological strides that keep the industry thriving amidst change. With numerous sugar mills dotting its landscape, each playing a vital role in the region's socioeconomic fabric, Maharashtra's sugar sector is a vibrant tapestry of growth and development. Yet, it hasn't been all smooth sailing. The industry grapples with fluctuating sugar prices, the unpredictability of weather, ever-shifting government policies, and the pressing need for technological upgrades. But despite these hurdles, Maharashtra's sugar industry remains a beacon of opportunity, ripe for growth and transformation. [14] This paper delves into the contemporary challenges and opportunities surrounding e-governance, particularly in the context of India's journey towards progress and development. Drawing from existing literature, it explores how e-governance can contribute to development by enhancing efficiency, transparency, and citizen engagement. Key topics include the impact of e-governance on citizens' access to services, its comparison with traditional methods, and the reasons behind setbacks in implementation, especially in developing countries. Moreover, the paper emphasizes the importance of building trust among citizens, safeguarding privacy, and promoting good governance practices to ensure the responsible and effective use of digital technologies in governance. Through these discussions, the study aims to offer fresh insights into the dynamic landscape of e-governance, ultimately striving to improve the lives of citizens across the nation. [15] The Indian sugar industry is more than just a sector of commerce; it's a tapestry woven with the hard work and dedication of millions of farmers and their families. Spanning across the countryside, it supports livelihoods and sustains communities, with over 50 million individuals reliant on its success. From the bustling sugar mills to the quiet fields where sugarcane grows, it's a testament to the resilience and ingenuity of rural India. Despite its cyclical nature, the industry remains a cornerstone of the nation's economy, not only meeting the vast domestic demand for sugar but also generating surplus energy to power India's growth. Internationally, India's presence in the global sugar market is significant, with its domestic market ranking among the largest globally and its role as the world's second-largest sugar producer driving growth rates higher than average. [16] In this paper, we take a deep dive into how globalization has shaped the sugar industry, aiming to understand its real-world impact on people's lives. We're not just looking at numbers here; we're talking about how sugar mills affect the daily lives of sugarcane farmers, workers, and entire communities. Through our analysis, we've uncovered some fascinating insights into the socio-economic dynamics at play. From how sugar mills pay farmers for their crops to the relationships between workers and management, we're peeling back the layers to see what's going on. But it's not all rosy; we're also exploring why some sugar mills aren't performing as well as they could be. Despite the challenges, it's

clear that sugar mills are more than just factories; they're lifelines for many rural areas, providing jobs for the unemployed and creating opportunities for those who need them most. But there are also downsides, like pollution and health concerns for workers and nearby residents. Yet, despite these hurdles, the sugar industry remains a driving force behind economic growth, breathing life into rural communities and shaping the landscape of our nation's economy. [17] This volume dives into the complex dance between globalization and governance, zooming in on how it plays out within India's backyard—the politics, institutions, and policies that shape our lives. Through the voices of various contributors, we get a glimpse into the tightrope walk between global forces and local dynamics, unraveling how they weave together to influence our state-society-market relations. Each paper in this collection is like a thread in a tapestry, revealing the intricate patterns of policy reforms and institutional shifts. As we grapple with the aftermath of the COVID-19 pandemic, which has thrust the spotlight on the deep connections between globalization and governance, this volume serves as a guiding light. It delves into themes like the very essence of the Indian state's liberalism, the journeys of our economic elites in a globalized world, and the impact of global norms on our local transparency laws. It's a journey through the heart of India's governance landscape, exploring how we navigate the currents of globalization while holding onto our own identity and resilience.[18] In this paper, we're embarking on a journey that takes us deep into the heart of Africa, exploring the stories, struggles, and triumphs of its people against the backdrop of globalization, governance, and development. Picture yourself walking through bustling markets, chatting with farmers in the fields, and listening to the hopes and dreams of families striving for a better future. Over the past two decades, we've crisscrossed the continent, collecting stories and data from 51 different countries, each one a vibrant tapestry of cultures, traditions, and aspirations. What we've uncovered is a rich and complex mosaic—a tapestry woven with threads of globalization, governance policies, and the quest for development. Yet, as we zoom in on different regions, we discover that the picture is never quite the same. In some places, like the Economic Community of Central African States (ECCAS), the path to progress seems less straightforward, marked by challenges and obstacles. But amidst the diversity and complexity, there's a common thread of resilience and determination. Across the continent, people are pushing boundaries, forging ahead, and building brighter futures for themselves and their communities. And while globalization and governance play a pivotal role in shaping these journeys, it's the human stories—the faces, voices, and experiences of everyday people—that truly bring this narrative to life. So, as we delve into the data and analysis, let's never lose sight of the real people behind the numbers—their struggles, their triumphs, and their unwavering spirit in the face of adversity. [19] The primary objective of this study is to assess how capital structure and corporate governance influence firm performance, specifically within the sugar sector. To validate our hypotheses, we collected data from the annual reports of sugar sector companies listed on the PSX spanning the years 2015 to 2020. Our analysis indicates that both measures of capital structure, D/A, and D/E, are negatively correlated with company performance. Additionally, two out of the three proxies of corporate governance—board size and chairman/CEO duality—show a negative association with company performance. However, it is noteworthy that audit committee size exhibits a positive impact on company performance.[20]

### 3. PROBLEM IDENTIFIED

In the context of cooperative sugar industries, globalization and the implementation of effective IT governance present both opportunities and challenges. Globalization has created new market opportunities and intensified competition, pushing cooperative sugar industries to adopt advanced technologies and

enhance their operational efficiencies to maintain competitiveness. However, these industries encounter significant hurdles, including managing intricate global supply chains, adhering to diverse regulatory frameworks across various regions, and navigating price volatility in international markets. Moreover, integrating IT governance frameworks introduces additional complexities such as resource limitations, adapting to new technologies, and securing skilled personnel. Cooperative sugar industries often struggle to find a balance between utilizing technological advancements to boost productivity and ensuring equitable access and benefits for all members. Therefore, understanding how globalization impacts IT governance is essential for devising effective strategies to streamline operations, ensure regulatory compliance, and foster sustainable growth in a rapidly evolving global marketplace.

#### **4. OBJECTIVES**

This study sets out to explore the impact of globalization on cooperative sugar industries worldwide. Our main goal is to comprehend how globalization shapes market dynamics, technological advancements, and regulatory landscapes within these sectors. Moreover, we aim to assess the effectiveness of IT governance practices adopted by cooperative sugar producers. By scrutinizing IT governance frameworks, policies, and implementations across diverse regions, we intend to gauge their alignment with business objectives and their capacity to mitigate risks while enhancing operational efficiency. Additionally, we strive to investigate the interplay between globalization and IT governance in cooperative sugar industries. Through in-depth case studies and analysis of exemplary practices, we aspire to unveil how these industries utilize IT governance to navigate the challenges and seize the opportunities presented by globalization. Ultimately, our research aims to offer actionable recommendations for enhancing IT governance frameworks within cooperative sugar industries, providing valuable insights for industry stakeholders and policymakers to foster sustainable growth in an interconnected world.

#### **5. RESEARCH METHODOLOGY**

This study dives into the world of cooperative sugar industries, aiming to understand how they navigate the realms of Globalization and IT governance practices. It's like peering into their daily operations, seeing how they adapt and evolve in today's globalized world. We're not just crunching numbers here; we're delving into the real-life experiences and challenges faced by these industries. Through systematic collection, analysis, and interpretation of data, we hope to shed light on their strategies, successes, and areas for improvement.

##### **5.1 DATA SOURCES**

We collected necessary data from a range of sources including sugar factory documents, web resources, reference books, reports from sugar commissionaires, as well as various publications, journals, and articles.

##### **5.2 GLOBALIZATION IN COOPERATIVE SUGAR INDUSTRIES**

The historical development of the sugar industry within cooperative sugar industries reflects a journey marked by significant evolution. Dating back centuries, the global sugar trade has been pivotal in shaping economies and societies worldwide. From its ancient origins to the establishment of large-scale sugar plantations, particularly in the Caribbean, the industry has experienced profound changes. However, a notable transformation occurred with the introduction of cooperative models, where farmers collectively own and manage sugar production. This cooperative approach emerged as a response to challenges faced by small-scale growers, offering economic stability, equitable profit-sharing, and sustainable agricultural

practices. This evolution underscores the resilience and adaptability of cooperative sugar industries, enabling them to navigate historical challenges while embracing opportunities presented by globalization. Globalization has profoundly impacted cooperative sugar industries, reshaping their operational landscape and market dynamics on a global scale. At the heart of this transformation lies the expanded market reach facilitated by globalization. With trade barriers diminishing and international trade agreements fostering cross-border commerce, cooperative sugar producers now have access to markets far beyond their local and national boundaries. This widened market horizon not only presents opportunities for revenue growth but also exposes these industries to diverse consumer preferences and demands from various corners of the globe. Furthermore, globalization has spurred the exchange of technological advancements and best practices across borders. Cooperative sugar industries have seized the opportunity to adopt and implement cutting-edge agricultural techniques and sustainable practices, elevating their productivity, efficiency, and sustainability. Despite the numerous benefits, globalization also poses challenges for cooperative sugar industries. Intensified competition and the need to comply with a plethora of regulatory frameworks across different regions are among the hurdles they must navigate. Nonetheless, by embracing innovation and strategic adaptation, cooperative sugar industries can harness the opportunities presented by globalization to foster sustainable growth and resilience in the ever-evolving global marketplace.

Globalization helps cooperative sugar industries in many ways. It opens up bigger markets, so they can sell their sugar to more people around the world. This means more money for the cooperatives and the communities they're part of. Also, globalization brings new farming techniques and machines from different countries, making it easier to grow and process sugar. By joining global supply chains, these industries can work more efficiently and save money. Plus, being part of the global community lets them share ideas with other sugar producers, learning from each other and getting better together. Overall, globalization is like a big boost for cooperative sugar industries, helping them grow and succeed in the world market.

Globalization brings both opportunities and challenges for cooperative sugar industries. One major challenge is increased competition. As large multinational companies enter global markets, cooperative sugar producers face pressure to lower prices and differentiate their products. Another challenge is navigating diverse regulations. Different countries have different rules, which can be difficult for smaller cooperatives to follow. Also, global markets can be volatile, with prices changing due to factors like global trends and political events. This volatility can hurt cooperative sugar industries, making it important for them to have plans to deal with risk. Despite these challenges, cooperative sugar industries continue to focus on helping their communities and using sustainable farming practices.

### **5.3 IT GOVERNANCE IN COOPERATIVE SUGAR INDUSTRY**

In the globalized landscape of cooperative sugar industries, the essence of effective IT governance lies in its role as both architect and conductor, shaping the digital symphony that drives success. Much like a masterful conductor directs a diverse orchestra toward a unified performance, IT governance orchestrates the intricate interplay of technology, strategy, and operations within cooperative sugar enterprises

At its core, IT governance establishes the rules of engagement for technology adoption and utilization, fostering a culture of accountability and alignment with organizational objectives. It serves as the guiding beacon, illuminating the path toward optimized resource allocation, risk mitigation, and strategic goal attainment. Just as a well-structured framework of traffic regulations ensures smooth traffic flow, IT governance ensures the seamless operation of digital resources within cooperative sugar industries, enhancing efficiency and productivity.



Moreover, IT governance fuels innovation and adaptability by nurturing a fertile ecosystem for technological advancement. By embracing emerging trends and best practices, it empowers cooperative sugar enterprises to navigate the choppy waters of market evolution with agility and foresight. Like a skilled navigator charting a course through uncharted waters, IT governance guides these industries toward new opportunities, enabling them to harness the winds of change to their advantage.

In essence, IT governance breathes life into the digital infrastructure of cooperative sugar industries, transforming them into dynamic, resilient entities poised for success in the global arena. Just as a conductor imbues a musical performance with harmony and depth, effective IT governance harmonizes the diverse elements of technology and business strategy, ensuring a symphonic resonance that resonates with stakeholders and customers alike.

In the expansive realm of global cooperative sugar industries, IT governance stands as the architect and guardian, sculpting the digital landscape while safeguarding against turbulent seas. Picture it as the trusted helmsman, steering the vessel through ever-changing waters with precision and foresight. Within this framework, several key components form the backbone, each vital to the industry's digital voyage.

First and foremost is strategic alignment, akin to plotting a course by the stars. IT governance ensures that every technological endeavor is intricately woven into the fabric of the cooperative's overarching vision and goals. Much like a seasoned navigator charts a path toward a distant shore, IT governance ensures that digital investments propel the cooperative closer to its desired destination, guiding decisions with purpose and clarity.

Then there's risk management, akin to navigating treacherous shoals and storms. IT governance stands as the vigilant lookout, scanning the horizon for potential threats and vulnerabilities. Whether it's cybersecurity perils or regulatory challenges, IT governance acts as the stalwart defender, fortifying the cooperative's digital fortress and ensuring safe passage through turbulent waters.

Next comes resource management, reminiscent of carefully rationing supplies for a long journey. IT governance optimizes the allocation of technological resources, ensuring that investments yield maximum value. Like a prudent quartermaster managing provisions for the crew, IT governance allocates funds, talent, and infrastructure in a manner that sustains efficiency and resilience within the cooperative sugar industry.

Moreover, performance measurement serves as the compass guiding the vessel's course. IT governance establishes metrics and benchmarks to gauge the effectiveness of technological initiatives, providing insights that steer future endeavors. Much like a skilled navigator consulting maps and instruments, IT governance evaluates performance data to course-correct and optimize the cooperative's digital trajectory.

In essence, IT governance is the steady hand that guides cooperative sugar industries through the choppy waters of globalization and technological evolution. Just as a seasoned captain relies on navigation aids to chart a safe passage, cooperative sugar enterprises rely on IT governance to navigate the complexities of the digital landscape, ensuring a voyage marked by prosperity and success.

In today's cooperative sugar industries, IT governance plays a pivotal role in navigating the complexities of globalization. These industries rely heavily on technological advancements to streamline operations, enhance productivity, and ensure competitiveness in the global market.

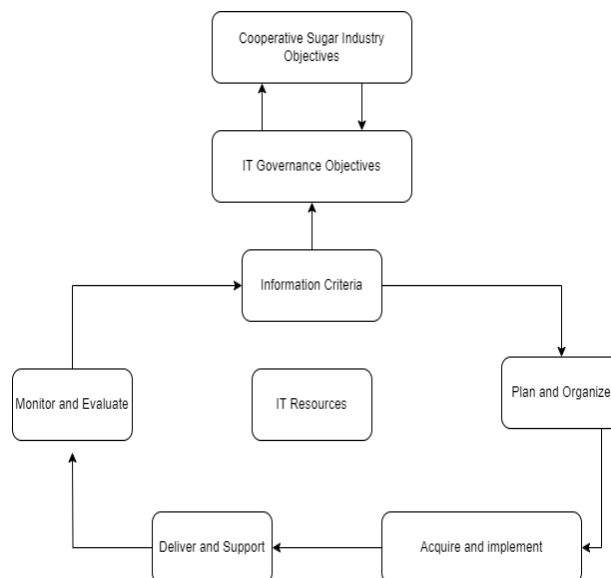
At present, the current state of IT governance in cooperative sugar industries reflects a significant shift towards modernization and digitalization. With the advent of advanced IT systems, such as enterprise resource planning (ERP) solutions and data analytics tools, cooperative sugar industries are better equipped to manage their operations efficiently.

Moreover, IT governance frameworks have been implemented to establish clear policies, procedures, and controls governing the use of IT resources within these industries. This ensures that IT investments align with business objectives, mitigate risks effectively, and comply with regulatory requirements. Furthermore, there is a growing emphasis on cybersecurity measures to safeguard sensitive data and protect against cyber threats. Cooperative sugar industries are investing in robust cybersecurity protocols, including firewalls, encryption technologies, and employee training programs, to fortify their IT infrastructure against potential breaches.

Overall, the current state of IT governance in cooperative sugar industries reflects a concerted effort to leverage technology effectively, foster innovation, and adapt to the demands of globalization while prioritizing security and compliance.

### 5.4 IT GOVERNANCE FRAMEWORK FOR COOPERATIVE SUGAR INDUSTRY

Implementing IT governance in cooperative sugar industries presents a unique set of challenges. One of the primary difficulties is the traditional nature of these industries, which often rely on established, manual processes. Transitioning to a structured IT governance framework can be met with resistance from employees who are accustomed to long-standing methods. Additionally, cooperative sugar industries typically operate on tight budgets, making the investment in new technologies and the necessary training for staff a significant hurdle. The complexity of integrating various IT systems to ensure seamless operations and data management can also pose significant technical challenges. Furthermore, achieving consensus among the numerous stakeholders in a cooperative model can be cumbersome, slowing down decision-making processes and implementation. Overall, while IT governance can greatly enhance efficiency and transparency, these industries must navigate cultural, financial, and technical obstacles to realize its full benefits.



**Figure 1: IT Governance Framework**

This framework ensures that IT resources are aligned with business objectives, optimized for performance, and compliant with regulatory requirements, all while facilitating effective monitoring and evaluation of IT assets and processes.

#### 1. Plan and Organize

- Define IT strategy.
- Establish information architecture.
- Determine technology implementation direction.
- Establish IT processes and their relationship with banking processes.
- Accomplish IT investment.
- Communicate management objectives to staff.
- IT human resource management.
- Quality management.

## **2. Acquire and Implement**

- Identify different solutions.
- Acquire necessary hardware and software infrastructure.
- Acquire CBS application and delivery channels.
- Business process reengineering.
- Implement solutions.

## **3. Deliver and Support**

- Define and manage services, including third-party services.
- Ensure continuity in service and security.
- Determine and allocate cost.
- User training.
- Management of service desk.
- Management of system configuration.
- Management of data.
- Management of non-IT assets and physical environment.
- Overall management of operation.

## **4. Monitor and Evaluate**

- Establish IT asset performance parameters.
- Establish, evaluate, and monitor controls.
- Ensure compliance with controlling authorities.
- Provide IT governance.

## **5.5 THE IMPACT OF GLOBALIZATION ON IT GOVERNANCE IN COOPERATIVE SUGAR INDUSTRY**

Globalization has brought significant changes to how cooperative sugar industries manage their IT systems, impacting their strategies to stay relevant in a global market. As these industries expand and engage with international markets, they're compelled to adopt advanced IT systems for efficiency and security. This push is fueled by the competitive global landscape, which demands continuous modernization of IT approaches. To remain competitive, these industries are embracing new technologies and global standards. This includes beefing up cybersecurity to safeguard critical data, utilizing cloud computing for flexibility and scalability, and harnessing data analytics for better market insights. Additionally, operating on a global scale requires compliance with international regulations, significantly shaping IT governance policies.

The move towards global standards not only makes processes more efficient but also encourages innovation. By following international best practices, cooperative sugar industries can guarantee strong, secure, and efficient IT systems. This integration also encourages collaboration, enabling them to

implement effective technologies from across the globe. Yet, amidst the technological advancements, it's essential not to overlook the human aspect. Employees are the backbone of these cooperatives, and their involvement is crucial. Therefore, creating an inclusive work environment where everyone feels valued is paramount. So, when we discuss the impact of globalization on IT governance in sugar cooperatives, it's about finding the right balance. It's about integrating cutting-edge technology with a people-first approach. By doing so, these cooperatives can navigate the complexities of global markets while fostering growth and competitiveness.

### **5.6 COMPARATIVE ANALYSIS OF COOPERATIVE SUGAR INDUSTRIES IN DIFFERENT REGION**

Cooperative sugar industries across various regions display distinct characteristics shaped by local conditions and the forces of globalization. In India, these cooperatives are deeply embedded in the rural economy, providing employment and supporting smallholder farmers. For instance, the cooperative model in Maharashtra has been particularly successful due to strong political backing and well-developed irrigation infrastructure. In contrast, in Latin American countries like Brazil, the sugar industry is dominated by large-scale corporate enterprises. Still, cooperatives also play a crucial role, often focusing on sustainable practices and fair-trade certification to meet global market demands. Globalization has significantly impacted these regional cooperative sugar industries. Exposure to global markets in India has pushed cooperatives to adopt more efficient technologies and improve quality standards to remain competitive. Conversely, globalization has also brought challenges, such as fluctuating global sugar prices and competition from heavily subsidized sugar industries in developed countries. In Brazil, cooperatives have leveraged globalization by exporting to diverse international markets, which has necessitated adherence to stringent quality and sustainability standards. These regional differences underscore how local conditions—such as political support, infrastructure, and market access—interact with global economic trends to shape the operations and success of cooperative sugar industries. By highlighting these aspects, we can see the nuanced impact of globalization on regional agricultural cooperatives, where adaptation and resilience are key to thriving in an interconnected world.

## **6. CONCLUSION**

In conclusion, globalization and IT governance in the cooperative sugar industry present significant opportunities and challenges. IT governance enhances operational efficiency, data security, and compliance, facilitating global market access and improving decision-making and transparency. As globalization reshapes the competitive landscape, cooperative sugar enterprises must adopt robust IT governance frameworks to optimize supply chain management, protect sensitive information, and adhere to diverse regulatory standards. Effective IT governance fosters accountability and agility, allowing cooperatives to integrate new technologies swiftly and sustain their competitive edge. Investing in IT governance as a strategic asset is imperative for harnessing globalization's benefits and mitigating risks. Future research should explore how evolving IT governance frameworks respond to emerging technologies and shifting global dynamics, ensuring the industry's resilience and competitiveness.

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