Enterprise Information System: History and Future Trends – A Systematic Review

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ABSTRACT

In current times, with the introduction of industry 4.0, Enterprise Information Systems play a crucial role in the operation of organizations. The following article will dive deeper into the evolution of Enterprise Information Systems.

Business information systems emerged in the 1960s, initially in paper format, evolving into more complex digital systems that automate processes and integrate various business areas. Among these systems, Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Manufacturing Execution Systems (MES), Customer Relationship Management (CRM), Product Lifecycle Management (PLM), and Business Intelligence (BI) systems stand out.

In the future, decentralized solutions should be considered due to their benefits, while always keeping in mind their challenges, costs, and the impact they may have on the organization. Therefore, it is important to conduct a study regarding whether such solutions should be implemented and subsequently how they should be implemented by the company.

1. Introduction

In today's rapidly expanding information landscape, with an increasing number of decisions to be made in the business context and the implementation of Industry 4.0, enterprise information systems have assumed greater importance within companies and organizations. They are essential at both abstract and elemental levels, necessary for both long-term and short-term management by top executives and for day-to-day activities performed by employees. The implementation of such systems promotes the smooth functioning of the organization, enhances the efficiency of current processes, and assists in the creation of new, more efficient processes that result in better financial outcomes for the company and optimization of tasks performed within it.

Initially, the article outlines the history behind various information systems and their emergence. It then delves into greater detail, discussing their utility, importance in the business environment, and the specific areas in which they operate. Finally, it mentions trends regarding the utilization of such systems in the industry.

In modern business environments, enterprise information systems play a crucial role in meeting growing demands and driving organizational change. The emergence of Industry 4.0, marked by the integration of technology and data analytics, is reshaping these systems significantly. This systematic review aims to investigate not only the historical development of enterprise information systems but also their adaptation to new technologies and market dynamics.

Through a detailed analysis of past and present contexts, the review seeks to uncover how enterprise information systems influence organizational performance and decision-making processes. It also aims to identify emerging trends and future prospects in the digital era.

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Furthermore, the review examines the intricate relationship between enterprise information systems and organizational strategies, emphasizing their importance in fostering innovation, flexibility, and competitive edge. By synthesizing empirical findings and scholarly insights, it provides valuable guidance for practitioners, researchers, and policymakers, aiding them in making informed decisions and investments in information technology.

In the upcoming sections, this systematic review will delve deeper into the historical roots of enterprise information systems, assess their current relevance across different organizational settings, and highlight emerging trends that are reshaping information management practices. Through this thorough exploration, our goal is to enhance understanding of the evolution and impact of enterprise information systems, contributing to the knowledge base in this critical field.

2. Methods

A systematic review of the literature was conducted to describe the history behind Enterprise Information Systems and it's evolution and possible future trends. The systematic review was prepared according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) Statement.

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) is a methodology used to conduct and register systematic reviews. Several databases were used to carry out the various searches, such as IEEE, ACM, GOOGLE SCHOLAR, Research Gate and Elsevier. A database aggregator called b-on was used to help with the search. It has information on the various databases mentioned above, i.e. it is possible to access articles from these databases on a single platform, but it is also possible to use this site to facilitate the search, since the platform identifies and eliminates repeated publications that may exist, since several articles may have been published by various publishers.

2.1. Eligibility Criteria

The process involved several sequential steps: identification, screening, eligibility assessment, and inclusion of articles for analysis.

2.1.1. Inclusion and Exclusion Criteria

Articles were included if they met the following criteria:

- Relevant to Enterprise Information Systems.
- Include information on Enterprise Resource Planning (ERP).
- Include information on Supply Chaim Management (SCM).
- Include information on Manufacturing Systems (MES).
- Include information on Customer Relationship Management (CRM).
- Include information on Product Lifecycle Management (PLM).
- Include information on Business Intelligence (BI).
- Studies related to future trends will only be considered from 2019 and onward.
- Must be in english.
- Articles must be concise, therefore, only theoretical papers, empirical studies and literature review will be considered.

Articles were excluded if they:

- Were not written in English.
- Did not include information on ERP, SCM, MES, CRM, PLM or BI in Enterprise Information Systems.
- Publications prior to 2019, will not be considered for future trends.
- Articles of an opinion-based and no concrete evidence will not be considered.

2.1.2. Research questions

1. What are the predominant trends and emerging technologies influencing the future trajectory of enterprise information systems?
2. What are the main factors driving the adoption and implementation of enterprise information systems in organizations?
3. How do enterprise information systems impact various stakeholders, including employees, managers, customers, and shareholders?
4. How do enterprise information systems contribute to organizational performance, innovation, and competitive advantage?

2.2. Information sources and search strategy

We conducted a comprehensive search across multiple academic databases, including but not limited to PubMed, IEEEXplore, ACM Digital Library, Scopus, and Web of Science. The search strategy comprised a combination of relevant keywords and controlled vocabulary terms related to Enterprise Information Systems, Enterprise Resource Planning, supply Chain Management, Manufacturing Execution Systems, Customer Relationship Management, Product Lifecycle Management, Business Intelligence and systematic reviews. The search terms were adapted based on the specific requirements of each database. The search was limited to articles published in English and articles regarding future trends, were only considered, if the publication date raged from 2019-2024.

2.3. Screening phase

For the initial part of the research on the history of enterprise information systems in a more general sense, the following query was used:

- Enterprise information System AND History AND CRM AND SCM AND ERP AND MES AND PLM AND BI;

The search with the keywords identified above returned 16 results, 6 of which were duplicates, so 10 unique results were identified. When it came to a more detailed search for each of the specific systems, the following query was used:

- Enterprise information System AND CRM AND SCM AND ERP AND MES AND PLM AND BI;

The search with the keywords identified above returned 50 results, 12 of which were duplicates, so 38 unique results were identified.

Finally, for the search on future trends, a time frame was set between 2019 and 2024, as we are talking about future trends in relation to 2024, as articles can be identified which effectively talk about future trends, but in relation to previous years, the future of some articles may be the present. In turn, the following query was used:

- Enterprise information System AND Future Trends AND CRM AND SCM AND ERP AND MES AND PLM AND BI;

The search with the keywords identified above returned 20 results, 4 of which were duplicates, so 16 unique results were identified.

Based on the search terms used, 104 studies were identified, of

Electronic Database	Search Terms
ACM, IEEE, Elsevier, Springer Nature, Research Gate	Enterprise information System; History; CRM ; SCM; ERP; MES; PLM; BI; Future Trends

Table 1: Keywords used in the search query

To enhance search efficiency, "AND" and "OR" operators were employed with keywords to reduce result volume and focus reading efforts. Addressing three key aspects, three distinct search queries were constructed.:

2.4. Selection process (eligibility phase)

Data extraction was performed independently by two reviewers using a standardized data extraction form. The following information was extracted from each included study:

- Study characteristics (e.g., authors, publication year).
- Methodologies and study design.
- Types of recommendation systems examined.
- Key findings and outcomes.

Any discrepancies between reviewers were resolved through discussion, and a third reviewer was consulted if consensus could not be reached.

2.5. Quality assessment and risk of bias

The quality of included studies was assessed using appropriate tools depending on the study design. For primary research studies, we utilized tools such as the Newcastle-Ottawa Scale (NOS) for observational studies and the Cochrane Risk of Bias Tool for randomized controlled trials. For systematic reviews, the Assessment of Multiple Systematic Reviews (AMSTAR) tool was employed. In the Figure 1 is shown the PRISMA flow diagram where is illustrating the article selection process.

2.6. Data collection process

A narrative synthesis approach was used to summarize the findings from the included studies. Themes and patterns identified across the studies were synthesized to provide insights into the landscape of recommendation systems in social media. This approach allowed for a comprehensive analysis of diverse methodologies and outcomes, highlighting commonalities and differences in the design and implementation of recommendation systems. By integrating qualitative and quantitative data, the narrative synthesis provided a robust framework for understanding how recommendation algorithms impact user engagement, content discovery, and social interactions on various social media platforms. Additionally, it shed light on emerging trends, such as the use of machine learning and AI to enhance personalization, the ethical implications of algorithmic biases, and the role of user feedback in refining recommendation systems. This synthesis also identified gaps in the current research, suggesting areas for future investigation to further optimize the effectiveness and fairness of recommendation systems in social media environments.

3. Results

In the following sections, we delve into the outcomes derived from our research efforts, unveiling insights and conclusions drawn from our analysis. Initially, we present the broader results obtained, shedding light on overarching findings and implications. Subsequently, we narrow our focus to explore the role and impact of Enterprise Information Systems (EIS). Within this specialized domain, we elucidate key observations, trends, and implications, offering a comprehensive understanding of how these systems contribute to organizational success in the contemporary business landscape.

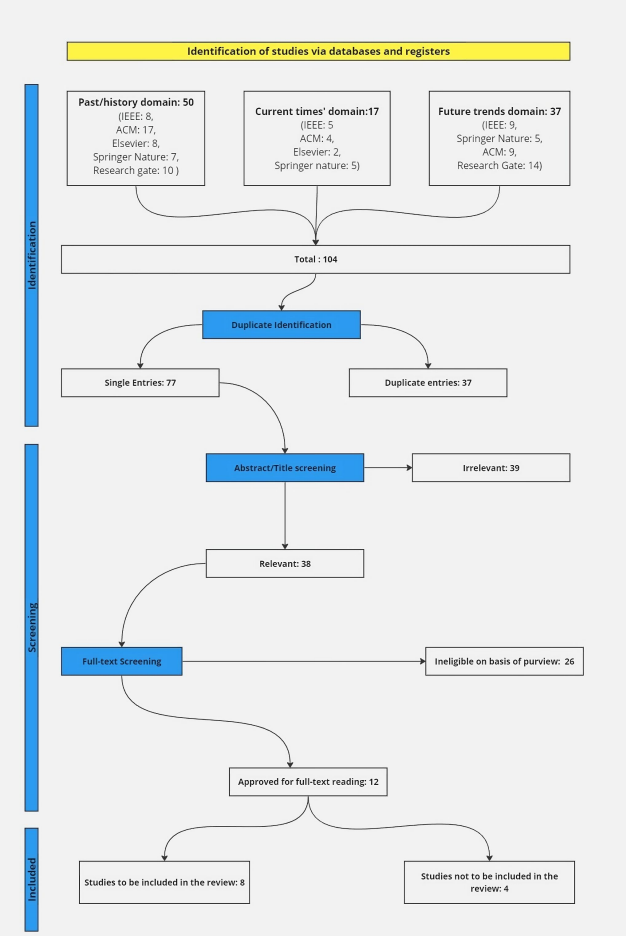

Figure 1: PRISMA flow diagram illustrating the article selection process.

3.1. Enterprise Information Systems

With the emergence of new technologies in the early 1960s, business information systems came into being. At the time, systems were used that were implemented on paper (for example, a company's accounts) and so, with the emergence of these systems, they went digital, making it easier to record and organize data. This also made it possible to transform the way processes were managed, automating them and abolishing manual tasks. When business information systems first emerged, they were responsible for specific areas of the business, and there was no interoperability with the various systems relating to other areas of the business, i.e. they were single applications. The evolution of the various constituent elements of these systems has allowed business information systems to play a more active role in the organization, being able to support other types of functionality that help in the company's decision-making process [1] [2].

As technology continued to advance, the scope and functionality of business information systems expanded

significantly. Early systems, while revolutionary at the time, were often limited in their capabilities and lacked the interoperability required for seamless integration across different business functions.

However, with ongoing technological innovation and the advent of standardized protocols and communication standards, the landscape of business information systems underwent a profound transformation. Interconnected networks and modular architectures enabled organizations to break down silos and achieve greater synergy between disparate systems.

The concept of enterprise resource planning (ERP) emerged as a pivotal development in the evolution of business information systems. ERP systems integrated core business processes, such as finance, human resources, and supply chain management, into a unified platform, enabling organizations to streamline operations, enhance collaboration, and drive efficiency.

Furthermore, the rise of customer relationship management (CRM) systems revolutionized how businesses interacted with their customers. CRM platforms provided organizations with a holistic view of customer interactions and preferences, enabling targeted marketing campaigns, personalized customer service, and enhanced customer satisfaction.

In recent years, the advent of cloud computing has further revolutionized the field of business information systems. Cloud-based solutions offer scalability, flexibility, and accessibility, empowering organizations to deploy and manage their systems with greater agility and cost-effectiveness.

Looking ahead, the future of business information systems holds immense promise, driven by emerging technologies such as artificial intelligence, machine learning, and the Internet of Things (IoT). These technologies promise to further enhance the capabilities of business information systems, enabling predictive analytics, autonomous decision-making, and unprecedented levels of business intelligence.

In summary, the evolution of business information systems has been characterized by a relentless pursuit of innovation and efficiency. From humble beginnings as digital replacements for paper-based processes to sophisticated platforms that underpin every aspect of modern enterprise management, business information systems continue to shape the way organizations operate and compete in today's digital economy.

3.2. ERP

Enterprise Resource Planning (ERP) is a system designed to integrate all of a company's resources, allowing data and processes to be brought together in a single environment. Once the data has been entered, it is transformed into information and processed by the various departments. The data is received from the various departments, from human resources to the sales department and in turn from inventory management to raw material production [14].

ERP began by supporting only basic data processing in the 1960s, but by the 1970s it had evolved to support complex business processes and information flows. It went through a process of evolution, with ERP/I, ERP/II and ERP/III, allowing for more advanced management control and decision support, particularly in the manufacturing industry. The ERP/I (Enterprise Resource Planning I) version appeared in the 1990s, integrating databases and operational functions in the organization. It focused on human resource management and quality management. The ERP/II (Enterprise Resource Planning II) version, which appeared in the 2000s, allowed collaboration between the various areas, namely supply, design and engineering, thus facilitating interorganizational collaboration and providing support for the company in a broad way. Lastly, the ERP/III version (Enterprise Resource Planning III) is the most up-to-date. By integrating the various means, it is possible to improve decision-making with the external data received and to support communication channels with customers. In summary, the ERP/I version inserted databases into integrated business systems, the ERP/II version was able to expand horizons, allowing collaboration beyond the organization and the ERP/III version created a data-driven business ecosystem [15].

3.3. SCM

Supply Chain Management (SCM) is part of logistics management. This type of system aims firstly to plan the supply chain, then to implement it and finally to control the flow of products and services, as well as the associated information from production to consumption. The supply chain includes raw materials, components and their associated products, but the manufacturing chain focuses on managing the important materials and components needed to manufacture the resulting products [9].

SCM first appeared in the 1960s and focused on managing product information and inventory. Like ERP, SCM has versions, more specifically four versions. Throughout these versions it has been possible to add information about the market, customers and demand, which has made it a very capable system for managing and controlling the inherent information. Starting with SCM/I, which originated in the late 1970s and 1980s, it began by managing information on products, stock levels and production costs. The SCM/II version, which began operating in the early 1990s, included market information and the management of customer orders, which made it possible to improve the availability of the organization's products and consequently increase the efficiency of product production. At the end of the 1990s, the SCM/III version was introduced, which included information on customers, making it possible to increase customer satisfaction and continuity with the company, thus improving customer service. In the 2000s, the most up-to-date version, SCM/IV, was introduced, making it possible to manage demand for products, raw material management, production, distribution and logistics. With this version, it was possible to have end-to-end management, making it possible to manage the entire distribution chain and avoiding some constraints in the supply chain [15].

Modern SCM systems also leverage advanced technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and blockchain to further enhance their capabilities. IoT devices provide real-time tracking and monitoring of goods throughout the supply chain, offering unprecedented visibility into every stage of the process. AI and machine learning algorithms are used to predict

demand more accurately, optimize inventory levels, and improve decision-making processes by analyzing vast amounts of data. Blockchain technology ensures transparency and security in transactions and records, which is particularly important for verifying the authenticity of products and maintaining trust in the supply chain.

Additionally, SCM has become integral to sustainability initiatives. Companies are now using SCM systems to track the environmental impact of their supply chains, ensuring that they meet regulatory requirements and corporate sustainability goals. By optimizing routes, reducing waste, and managing resources more efficiently, SCM contributes to more sustainable operations.

Collaboration and integration with other business systems have also become key features of modern SCM. Integration with Customer Relationship Management (CRM) and Product Lifecycle Management (PLM) systems allows for a more holistic approach to managing the product lifecycle from conception to customer delivery. This integration helps ensure that customer feedback is incorporated into product design and that supply chain operations are aligned with market demands.

In conclusion, SCM has evolved from a simple system for managing inventory and production information into a comprehensive, technologically advanced framework that enhances efficiency, transparency, and sustainability throughout the supply chain. This evolution reflects the increasing complexity and globalization of supply chains and the need for systems that can manage these challenges effectively.

3.4. MES

Manufacturing Execution Systems (MES) are systems that make it possible to improve manufacturing capabilities in organizations and function as a central hub where various business information systems can be integrated to provide real-time information to aid decision-making. Liang and Li argue that it is important to carry out a systematic and comprehensive evaluation before implementing MES, to ensure that the potential benefits outweigh the risks and costs involved [3].

In one specific case study, in which an MES was implemented in a company, a number of benefits were observed, namely a reduction in manufacturing cycle time by 12%, a reduction in data entry time by 18%, a reduction in water consumption per unit by 10%, an increase in equipment utilization rate by 15%, a reduction in work in progress by 10%, a reduction in defects from 3.8% to less than 3%, and an increase in the early delivery rate by 9% [12] [4].

The MES appeared in the 1980s, with the aim of helping with materials planning and controlling materials lists. Over the years, MES systems have been updated, with three versions. In the first generation, MES/I, this type of system was designed to collect, process and centralize data in order to support planning, production quality and finally develop reports on the manufacture of products. In the 1990s, the second generation, MES/II, appeared, where this system began to use data in real time, making it a dynamic system during manufacturing operations. And finally, in the era of Industry 4.0, the third and current generation, MES/III, emerged, where it focuses on the detailed planning of manufacturing units, allowing greater flexibility in production systems and thus supporting the different challenges of integration with other intelligent systems.Manufacturing Execution Systems (MES) are systems that make it possible to improve manufacturing capabilities in organizations and function as a central hub where various business information systems can be integrated to provide real-time information to aid decision-making. Liang and Li argue that it is important to carry out a systematic and comprehensive evaluation before implementing MES, to ensure that the potential benefits outweigh the risks and costs involved [15].

3.5. CRM

Customer Relationship Management (CRM), according to Shalender and Yadav, helps to maintain a lasting relationship with long-term customers and build customer loyalty to the brand by developing products/services aligned with the needs of those same customers. It should also be considered an approach focused on acquiring, retaining and maintaining customers, as well as managing the relationship with mine in a way that makes it profitable for the organization [16][4].

CRMs first appeared in the 1980s, where they began to support customer contact management and, in turn, the company's marketing. By the 1990s, these systems were completing loyalty programs and after 2000, they were supporting sales activities, automating marketing campaigns and customer support through ticketing systems [15].

The evolution of CRM can be traced back to the 1980s when early systems primarily focused on customer contact management. Over time, these systems evolved to encompass a broader array of functionalities, including marketing automation, sales support, and customer service management.

In the 1990s, CRM systems began incorporating loyalty programs aimed at incentivizing repeat purchases and fostering customer retention. Subsequent advancements in technology paved the way for more sophisticated CRM solutions capable of automating marketing campaigns, tracking sales activities, and streamlining customer support through ticketing systems.

Today, CRM represents a cornerstone of modern business operations, enabling organizations to gain a comprehensive understanding of their customers' behaviors, preferences, and needs. By harnessing the power of data analytics, artificial intelligence, and omnichannel engagement, CRM empowers businesses to deliver personalized experiences that resonate with customers on a deeper level.

As businesses continue to navigate an increasingly competitive and dynamic marketplace, the role of CRM in driving sustainable growth and profitability has never been more critical. By prioritizing customer-centricity and investing in robust CRM strategies and technologies, organizations can forge stronger connections with their customers, unlock new opportunities for revenue generation, and thrive in an ever-evolving landscape of consumer expectations.

3.6. PLM

Product Lifecycle Management (PLM) aims to manage the lifecycle of a product through various technical procedures and knowledge to analyze and optimize product

lifecycle activities. A product's lifecycle involves development, design, improvement, manufacturing, sales and after-sales services. Tong, Li and Lui mention the importance of sharing and disseminating knowledge, improving collaboration and decision-making, which leads to an increase in overall productivity. In turn, they also state that knowledge graphs and other organizational structures can optimize their information flows, thus improving the accessibility of data and facilitating a better understanding of complex concepts and relationships [17].

PLM originated in the late 1980s as a database for managing product construction data. By the early 1990s, it was supporting both functional and structural engineering processes. By the mid-1990s, this system was already able to integrate with other systems such as an ERP, bringing together product data that was not related to engineering data and, in turn, the list of materials required. And finally, in the 2000s, this system already supported all types of data relating to products in terms of their life cycle [5] [15].

As PLM evolved, it incorporated advanced technologies like CAD (Computer-Aided Design) and CAM (Computer-Aided Manufacturing), which streamlined the design and manufacturing processes by enabling detailed and precise product modeling. Additionally, the integration with ERP (Enterprise Resource Planning) systems facilitated better resource management and operational efficiency across various departments. Modern PLM solutions also leverage AI and machine learning to predict maintenance needs, enhance product design, and improve quality control. The use of cloud-based PLM systems has further enhanced accessibility, collaboration, and real-time data sharing, allowing global teams to work seamlessly together and respond quickly to market demands and changes. These advancements have made PLM a critical component in digital transformation strategies across industries, enabling companies to innovate faster and stay competitive in a rapidly changing market environment.

Furthermore, PLM systems now play a crucial role in sustainability and compliance management. By tracking materials and processes throughout the product lifecycle, companies can ensure that they meet environmental regulations and sustainability goals. PLM tools provide insights into the environmental impact of products, helping organizations design more eco-friendly products and reduce waste. Additionally, PLM systems facilitate compliance with industry standards and regulations by maintaining comprehensive records and documentation, thereby reducing the risk of non-compliance penalties.

The role of PLM in fostering innovation cannot be overstated. With features such as simulation, digital twins, and virtual prototyping, PLM enables companies to experiment with new ideas and concepts without the high costs and risks associated with physical prototypes. This accelerates the time-to-market for new products and allows for more frequent updates and improvements based on real-time feedback and data analysis. Collaboration platforms within PLM systems enable cross-functional teams, including engineers, designers, marketers, and suppliers, to work together more effectively, breaking down silos and promoting a more integrated approach to product development.

Overall, the evolution of PLM reflects a shift towards more holistic and integrated approaches to product management, where data and technology play a central role in driving efficiency, innovation, and sustainability throughout the product lifecycle.

3.7. BI

Business Intelligence (BI) systems are systems that combine data, store it, manage knowledge through analysis tools and manage to provide useful information at the right time, location and in the right way to help decision-makers [13].

BI originated in the 1980s as a basic reporting system. With the evolution of data processing tools and data warehouses that make it possible to store large amounts of data, it has been possible to build more complex decision support analysis systems. Today, these systems are able to provide information in real time, carry out predictive analysis and provide visualization tools that help companies make decisions [6] [15].

In addition to their historical evolution and capabilities, it's important to highlight the key components and functionalities that define modern Business Intelligence systems. These systems typically consist of several interconnected elements:

- **Data Integration and Storage**: BI systems rely on robust data integration processes to aggregate information from various sources, including internal databases, external data feeds, and third-party applications. This data is then stored in centralized repositories such as data warehouses or data lakes, ensuring consistency and accessibility for analysis.
- **Analytical Tools and Techniques**: At the heart of BI systems are advanced analytical tools and techniques that enable organizations to derive insights from their data. These tools encompass a wide range of methods, including descriptive analytics for understanding historical trends, diagnostic analytics for identifying root causes of issues, predictive analytics for forecasting future outcomes, and prescriptive analytics for recommending optimal courses of action.
- **Querying and Reporting**: BI systems offer robust querying and reporting capabilities that allow users to interact with data and generate customized reports and dashboards. These features enable decision-makers to explore data from multiple perspectives, drill down into specific details, and visualize key metrics in real time.
- **Data Visualization and Presentation**: Effective data visualization is a hallmark of modern BI systems, enabling users to communicate insights in a clear, compelling manner. These systems leverage a variety of visualization techniques, including charts, graphs, heatmaps, and interactive maps, to convey complex information in an intuitive format.

- **Collaboration and Sharing**: BI systems facilitate collaboration and knowledge sharing within organizations by providing mechanisms for sharing insights, collaborating on analyses, and fostering data-driven discussions. Features such as data sharing, commenting, and collaboration workspaces enable teams to collaborate effectively and align around common objectives.
- **Security and Governance**: Given the sensitive nature of business data, BI systems incorporate robust security and governance features to protect data integrity and ensure regulatory compliance. These features encompass role-based access control, data encryption, audit trails, and compliance reporting, among others, to safeguard data assets and mitigate risks.

By incorporating these components and functionalities, modern BI systems empower organizations to harness the full potential of their data assets and drive informed decision-making across all levels of the enterprise. From strategic planning and resource allocation to operational optimization and customer engagement, BI systems play a critical role in driving organizational success in today's data-driven world.

4. Future Trends

In the article written by Sunyaev, Dehling, Strahringer, Xu, Heinig, Perscheid, Alt and Rossi, they refer to the future of business information systems, where they present the concept of decentralized business information systems, their potential benefits, concerns and impact [7]. Such a system can serve as a fresh start for some companies and brings the advantage of being quickly adaptable to dynamic demands due to parallelism, greater local decision-making and feedback loops that rely on community input, while more centralized information systems rely on the expertise of a centralized management body to achieve their goals [8]. According to Kutera, blockchain represents an excellent example of how expectations can be exaggerated and in turn exploited regarding the benefits of decentralization, which can lead to millions of dollars being lost. Other risks are the challenges of managing decentralization, which in some cases can lead to a loss of control, as happened with the company Napser and the Chinese cryptocurrency industry. In short, a decentralized system can be a choice for the user's needs, but at the cost of greater system complexity, while a more centralized system reduces complexity in order to achieve the corporation's objectives[10].

An analysis should be carried out in which the coordination of the various mechanisms should be studied, as well as whether the implementation of this type of system is justifiable, namely when and for how long, given the high maintenance costs. If the answer is positive, a strategic plan should be drawn up to achieve the benefits that these systems bring, as well as to mitigate risks and avoid disastrous results[11].

5. Conclusion

In conclusion, it was identified that business information systems are a fundamental tool in decision-making, in the management of assets that lead to the success and continuity of organizations, as well as playing an important role in terms of the company's competitiveness in the market and in the business world. The evolution of technology over time has been remarkable, from simple systems to complex systems that integrate with each other and how they have been integrated into industry. Decentralized business information systems appear to be the solution of the future, but organizations should conduct analyses when considering the adoption of these new technologies, as well as when updating systems that are already in place and supporting the business. They should weigh up the benefits of adopting this type of system, identify possible risks and problems that may be inherent in the use of these systems, and carry out a study in relation to mitigating these risks and their impact on day-to-day activities, as well as on the company's management activities, both in the long term and in the short term.

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