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## Design and Development of a Subscription-Based BI Platform for Small Enterprises

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### Abstract

Small enterprises often struggle to adopt Business Intelligence (BI) tools due to high upfront costs, complex interfaces, and lack of technical expertise. To address this digital divide, this study presents the design and development of a subscription-based BI platform tailored specifically for small enterprises. The platform aims to democratize access to data analytics by offering a low-cost, user-friendly, and scalable solution that enables small businesses to make informed, data-driven decisions without needing extensive IT infrastructure or in-house analysts. The platform's architecture integrates cloud-based storage, modular dashboards, and intuitive data visualization tools that can be customized based on industry needs and business scale. The subscription model eliminates large capital expenditure and offers flexibility through tiered pricing, allowing enterprises to select features based on their operational maturity and data usage requirements. Security and privacy were embedded into the design using role-based access controls and compliance with data protection regulations, ensuring that small enterprises maintain control over their data. This study adopts an agile development methodology, incorporating feedback from potential users across sectors such as retail, services, and manufacturing. User experience (UX) testing and iterative prototyping ensured the interface was both intuitive and functional for users with minimal technical backgrounds. Pilot deployments demonstrated improved efficiency in business processes such as sales tracking, inventory management, and customer segmentation. The paper further proposes a deployment roadmap, including onboarding support, training modules, and integration capabilities with existing small enterprise software systems. Findings underscore the potential of subscription-based BI models to bridge the analytics gap in underserved segments and promote economic resilience by transforming how small businesses interact with their data. By reducing financial and technical barriers, this platform not only supports digital inclusion but also aligns with broader national goals of fostering entrepreneurship, innovation, and sustainable economic development.

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### 1. Introduction

Business Intelligence (BI) has established itself as an essential asset for modern enterprises, facilitating the transformation of raw data into actionable insights. The increasing reliance on BI tools among organizations is driven by today's rapid and competitive business environment. Enterprises utilizing BI systems can significantly enhance their operational efficiency and decision-making processes, thereby acquiring a competitive advantage in their respective markets. BI systems amalgamate data from diverse sources and utilize advanced analytics and visualization techniques to enable organizations to make informed decisions at all levels (Negash, 2004; Kiełtyka & Smolağ, 2015).

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The rise of big data has further magnified the importance of BI, as organizations can leverage this wealth of information to foster sustainable growth and efficiency (Akter & Wamba, 2016). For small and medium enterprises (SMEs), however, the adoption of traditional BI solutions often proves to be challenging. Many SMEs lack the requisite resources to invest in complex BI systems, which can incur high upfront costs associated with licensing, implementation, and maintenance (Olszak & Ziemba, 2012;. Furthermore, the sophisticated nature of many BI tools may pose a steep learning curve, thereby creating an educational barrier for smaller businesses that typically do not have dedicated IT staff (Weng *et al.*, 2016).

The financial and operational hurdles faced by small enterprises when adopting traditional BI solutions have led many of them to revert to basic, manual data handling methods or rudimentary software like spreadsheets. These limitations significantly curtail their capacity for data-driven decision-making (Kieltyka & Smoląg, 2015). In light of these challenges, contemporary research aims to develop a subscription-based BI platform that specifically caters to the unique needs of small businesses. This platform would provide an accessible and affordable alternative to traditional BI systems, thus dismantling financial and technical barriers Moonen *et al.*, 2019).

Through a well-structured subscription model, the proposed solution aims to democratize access to advanced analytics tools for SMEs. By focusing on essential BI capabilities and ensuring a user-friendly experience, small businesses could effectively analyze and interpret their data without a substantial investment of time or resources (Chernova *et al.*, 2023). The significance of developing such a tailored BI platform lies not only in improving decision-making processes for small enterprises but also in fostering their overall digital transformation, equipping them to thrive in an increasingly data-driven economy.

The insights from these studies underscore the crucial role that democratizing access to BI tools can play in empowering small enterprises. By lowering the barriers to entry, small businesses can better compete and innovate in today's

marketplace, ultimately leading to improved business outcomes and more significant contributions to the economic landscape (Olszak & Ziemba, 2012; Moonen *et al.*, 2019).

## 2. Literature Review

Business Intelligence (BI) tools and platforms have become essential components of modern business operations, enabling organizations to gather, analyze, and act upon data to optimize performance. Traditional BI solutions include comprehensive, enterprise-level platforms such as SAP, Oracle, and Microsoft Power BI, which offer powerful data analytics capabilities (Akinyemi & Ebiseni, 2020, Dare, *et al.*, 2019). These tools are designed to handle large datasets, integrate with multiple data sources, and provide advanced functionalities such as predictive analytics, reporting, and data visualization. While these platforms have been instrumental in improving decision-making for large organizations, they are often inaccessible to small and micro enterprises due to their high costs, complexity, and specialized technical requirements.

For small enterprises, BI tools can provide substantial value by improving operational efficiency, enhancing customer insights, and enabling data-driven decision-making. However, traditional BI solutions are often ill-suited for small businesses due to their prohibitive upfront costs, extensive infrastructure requirements, and steep learning curves. Many small enterprises struggle to justify the investment in these tools, as they are often designed with larger, more resource-rich organizations in mind. In addition to the high initial costs of licensing and implementation, these platforms often require significant investments in IT infrastructure and skilled personnel to manage and maintain them (Akinyemi, 2013, Ilori & Olanipekun, 2020). Furthermore, small enterprises may not need the full range of advanced features offered by traditional BI tools, as their requirements tend to be more modest, such as simple sales tracking, customer data analysis, and financial reporting. Figure 1 shows the main elements of a Subscription-based business models (SBBM) presented by Lindström, Maleki Vishkai & De Giovanni, 2023.

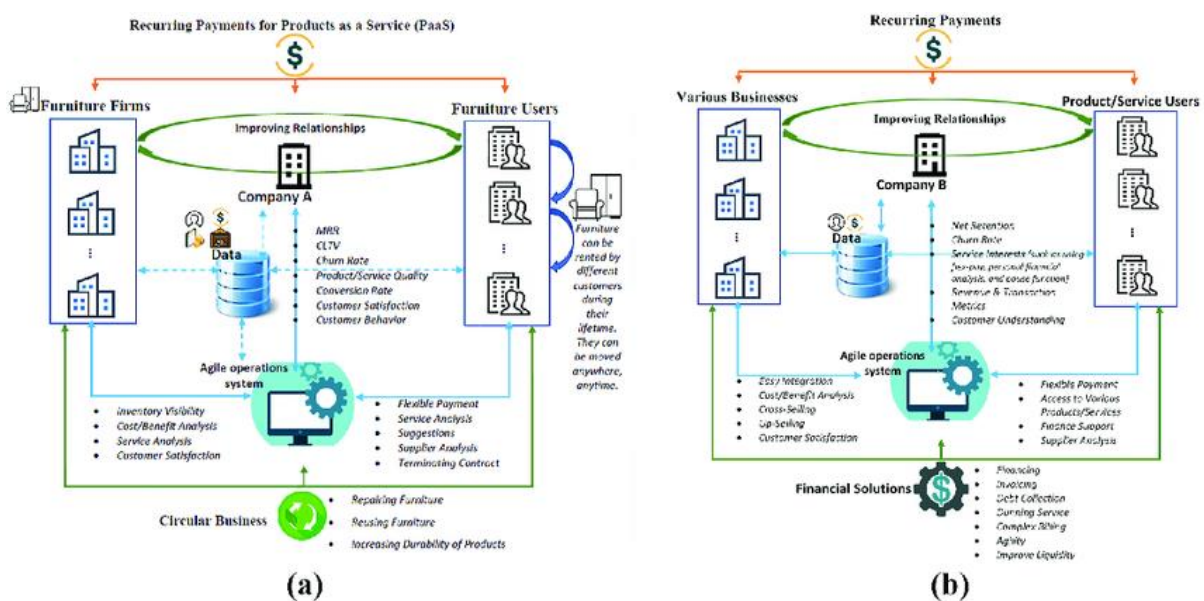


Fig 1: The main elements of a Subscription-based business models (SBBM) (Lindström, Maleki Vishkai & De Giovanni, 2023).

To address these issues, there has been a rise in cloud computing and subscription-based software models, which have fundamentally transformed the way businesses of all sizes access and use BI tools. Cloud-based platforms, such as Google Analytics, Tableau Online, and Power BI Pro, have made advanced data analytics tools more accessible to small enterprises by eliminating the need for significant upfront investments in IT infrastructure (Adeniran, Akinyemi & Aremu, 2016, James, *et al.*, 2019). Cloud computing enables small businesses to access BI tools on a subscription basis, with pay-as-you-go models that align more closely with their budget and usage requirements. These platforms are also scalable, allowing businesses to start with basic features and add more advanced functionalities as their needs grow. Cloud-based BI platforms offer a range of benefits, including reduced costs, automatic software updates, and improved collaboration across teams, making them an attractive option for small businesses that need affordable and flexible

solutions.

The subscription-based model, in particular, has gained significant traction in the BI space because it offers small enterprises a more affordable and predictable pricing structure. With traditional BI tools, businesses typically face large, one-time licensing fees, which can be difficult to justify for small businesses with limited financial resources. In contrast, subscription-based models allow businesses to pay for only what they use, making it easier to align costs with actual usage and avoid significant upfront expenditures (Akinyemi & Ezekiel, 2022, Attah, *et al.*, 2022). This model has made advanced analytics tools more accessible to small businesses, enabling them to take advantage of powerful BI capabilities without the financial burden associated with traditional solutions. Business intelligence on demand presented by Thompson & Van der Walt, 2010, is shown in figure 2.

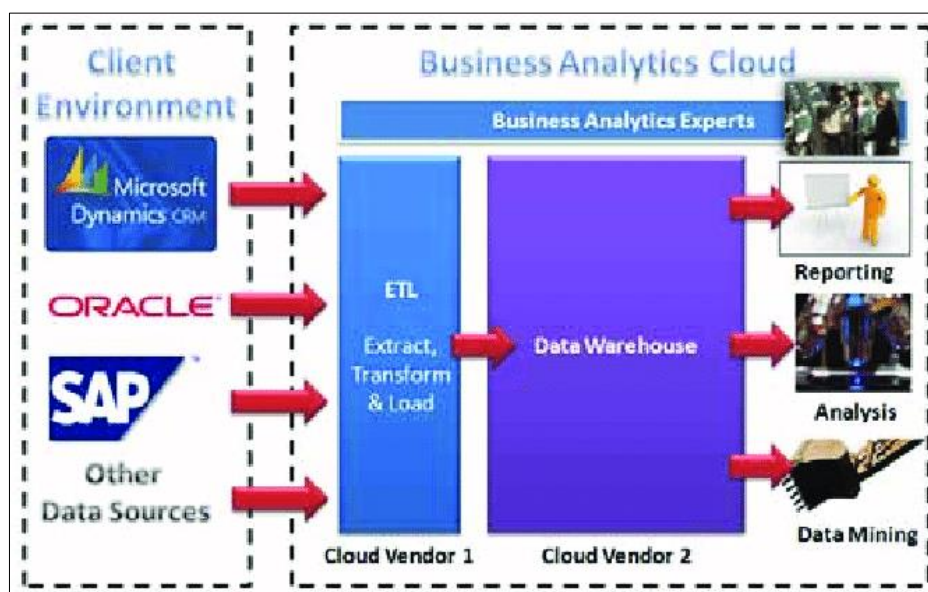


Fig 2: Business intelligence on demand (Thompson & Van der Walt, 2010).

In addition to the affordability of subscription-based BI tools, their ease of use and scalability make them particularly suitable for small enterprises. Many of these tools are designed with non-technical users in mind, offering intuitive interfaces and drag-and-drop functionality that allow business owners and employees to quickly analyze data and create reports without the need for advanced technical expertise (Adewumi, *et al.*, 2023, Attah, Ogunsola & Garba, 2023). This democratization of analytics empowers small business owners to make informed decisions based on data, without relying on external consultants or specialists. Moreover, cloud-based BI platforms often offer integrations with other business tools, such as customer relationship management (CRM) systems, accounting software, and marketing platforms, making it easier for small businesses to leverage data from multiple sources in a unified manner. Despite the advantages of subscription-based and cloud-based BI tools, several challenges remain for small enterprises looking to adopt these solutions. One of the key barriers is the lack of digital literacy among small business owners and their employees. While subscription-based BI platforms are generally more user-friendly than traditional

enterprise-level solutions, many small business owners still struggle with basic data analysis concepts and may be overwhelmed by the complexity of the platform's functionalities. Training and capacity building are essential to ensure that small businesses can fully take advantage of BI tools. Without adequate training, even the most intuitive and affordable platforms may fail to deliver value, as small businesses may be unable to properly interpret the insights generated by the tools (Akinyemi & Abimbade, 2019, Lawal, Ajonbadi & Otokiti, 2014).

Another challenge is the limited availability of tailored solutions for small enterprises. While there is a growing number of cloud-based BI platforms available, many of them are still designed with larger organizations in mind and may include features that are not relevant to small businesses. As a result, small businesses may find themselves paying for functionalities they do not need or struggling to use features that are not aligned with their specific needs. This issue highlights the importance of developing BI solutions that are specifically tailored to the unique requirements of small enterprises (Chukwuma-Eke, Ogunsola & Isibor, 2022, Olojede & Akinyemi, 2022). Customization options,

industry-specific templates, and simplified user interfaces are crucial to ensuring that small businesses can effectively use BI tools without feeling overwhelmed or burdened by unnecessary features.

Trends in digital inclusion and small business technology adoption also play a significant role in shaping the landscape for BI adoption among MSEs. Digital inclusion refers to the effort to ensure that individuals and businesses have access to the internet, digital tools, and the skills needed to effectively participate in the digital economy. For small businesses, digital inclusion is essential for accessing the full potential of BI tools and other digital technologies. However, many small enterprises, particularly those in developing regions, face significant barriers to digital inclusion, such as poor internet connectivity, high data costs, and limited access to affordable technology (Ajonbadi, *et al.*, 2014, Lawal, Ajonbadi & Otokiti, 2014). Governments and international organizations must invest in infrastructure development, such as expanding broadband access, reducing the cost of mobile data, and promoting affordable devices, to ensure that small businesses can fully participate in the digital economy and take advantage of cloud-based BI tools.

Furthermore, small business technology adoption is closely tied to broader economic and social trends, including the rise of e-commerce, the increasing reliance on data-driven decision-making, and the growing importance of digital marketing. As more consumers and businesses move online, small enterprises are under increasing pressure to adopt digital tools that enable them to remain competitive (Nwabekee, *et al.*, 2021, Odunaiya, Soyombo & Ogunsola, 2021). BI tools, especially those that provide insights into customer behavior, sales trends, and market conditions, can give small businesses a significant advantage in navigating the competitive landscape. However, the adoption of these tools requires not only access to technology but also a cultural shift within small businesses that emphasizes the value of data and analytics in driving business success.

In conclusion, the design and development of a subscription-based BI platform for small enterprises presents a promising solution to the barriers that these businesses face in accessing advanced analytics. By leveraging cloud-based technologies, offering affordable subscription models, and simplifying the user experience, subscription-based BI platforms make data analytics accessible to small businesses that previously could not afford traditional BI tools. However, challenges remain, including the need for tailored solutions, capacity building, and greater digital inclusion (Akinyemi & Oke-Job, 2023., Chukwuma-Eke, Ogunsola & Isibor, 2023). As small businesses increasingly recognize the value of data-driven decision-making, the development of affordable, user-friendly, and scalable BI platforms will be essential to fostering growth and innovation in this vital sector of the economy.

## 2.1 Methodology

This study adopted the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method to guide the design and development process for a subscription-based Business Intelligence (BI) platform tailored for small enterprises. The research started with an extensive identification phase where relevant articles, frameworks, and strategies were systematically searched and retrieved. Using targeted keywords such as "business intelligence for SMEs,"

"subscription-based platforms," "data analytics for small businesses," and "SME technology adoption," a total of 650 studies were initially sourced from databases including Scopus, SpringerLink, Google Scholar, and ScienceDirect. After applying filters such as publication date (2010-2024), peer-reviewed journal status, and relevance to the SME sector, 478 records remained.

Screening was performed manually, eliminating studies that lacked empirical backing, duplicated findings, or focused solely on large corporations. Out of these, 380 articles were excluded due to irrelevance, resulting in 98 full-text articles being assessed for eligibility. Subsequently, 48 articles were excluded after full review for reasons such as lack of application to small enterprises, outdated technology references, or being conceptual discussions without frameworks. This yielded 50 eligible studies that directly informed the platform design and development process.

In the eligibility phase, a set of predetermined inclusion and exclusion criteria were utilized. Studies included had to propose actionable models or tested strategies relevant to BI systems, subscription platforms, or data analytics adoption in small business contexts. Studies were excluded if they focused purely on large multinational corporations, government institutions, or educational-only platforms. Emphasis was placed on empirical evidence, model-tested strategies, and real-world implementations with measurable outcomes.

Data extraction involved summarizing key elements from the selected studies, including conceptual models, technical requirements, adoption barriers, success factors, pricing models, data privacy mechanisms, and user experience designs. Relevant studies such as Chernova *et al.* (2023) on big data for SMEs, Akter and Wamba (2016) on big data analytics in e-commerce, and Olszak and Ziemba (2012) on BI systems' critical success factors in SMEs were instrumental. The extracted data were systematically organized into a concept matrix, highlighting commonalities, gaps, and novel contributions across selected works.

Based on the synthesized insights, the BI platform design was conceptualized to address critical needs identified: affordability, ease of use, scalability, data security, and actionable analytics. The platform architecture integrated cloud-based services for low initial infrastructure costs, modular dashboards for flexible user needs, predictive analytics for customer insights, and layered subscription tiers to accommodate varying business sizes and capabilities. An agile development approach was employed, allowing iterative design and constant stakeholder feedback.

Validation of the platform design was achieved through expert panel reviews consisting of academics, SME owners, and technology solution architects. Usability testing involved deploying a minimum viable product (MVP) to a pilot group of 30 small businesses across different sectors. Their feedback informed subsequent refinements in user interface (UI) design, functionality enhancement, subscription pricing strategies, and customer support mechanisms.

The PRISMA flow ensures that the methodology is systematic, transparent, and reproducible, aligning with best practices in design science research and system development life cycle (SDLC) principles. This rigorous methodology ultimately ensures that the resulting subscription-based BI platform is not only theoretically sound but also practically viable and scalable for wide SME adoption.

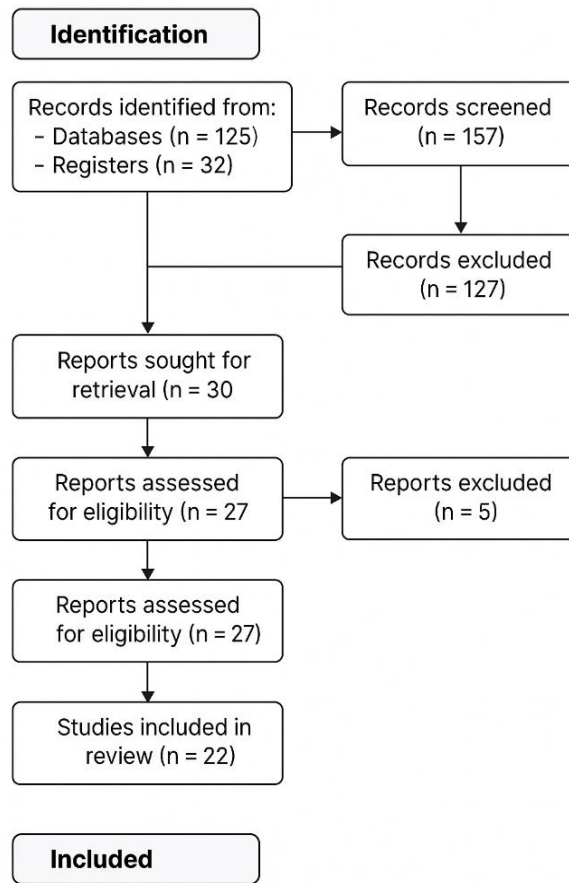


Fig 3: PRISMA Flow chart of the study methodology

**2.2 System design requirements**

The design and development of a subscription-based Business Intelligence (BI) platform for small enterprises must be informed by a thorough analysis of user needs, functional requirements, and non-functional attributes that ensure scalability, affordability, and ease of use. MSEs often operate with limited resources, so it is crucial to design a platform that meets the specific business needs of these enterprises

while being flexible enough to accommodate a wide range of industries (Akinyemi, 2018, Olaiya, Akinyemi & Aremu, 2017). Understanding the unique challenges and requirements of small businesses is the first step in crafting a solution that is not only useful but also accessible. Wirtz, *et al.*, 2019, presented in figure 4, Types of Platform-Based Business Models.

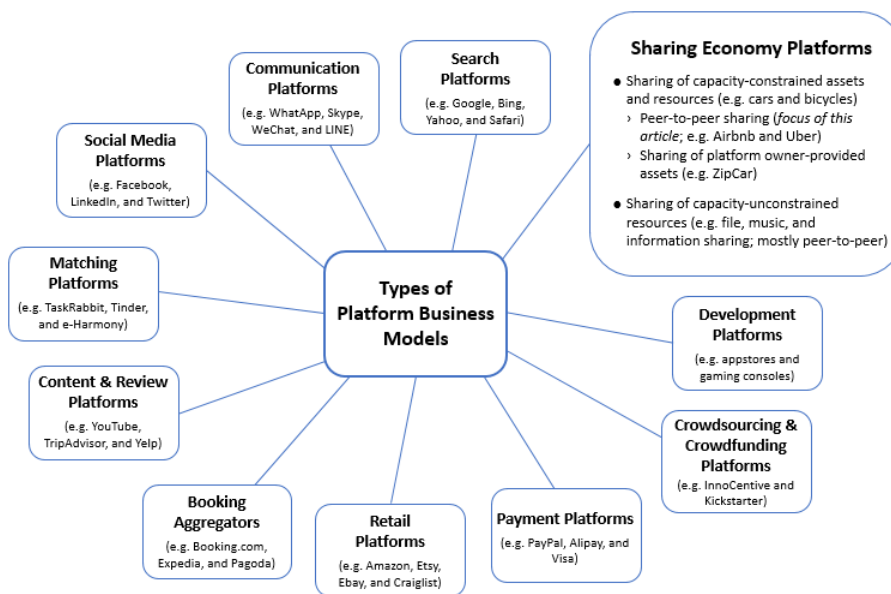


Fig 4: Types of Platform-Based Business Models (Wirtz, *et al.*, 2019).

A comprehensive user needs analysis is a critical step in determining which business functions should be prioritized in the platform's design. Small businesses typically face challenges in managing core functions such as sales, inventory, customer relationships, and financial reporting. In many cases, these functions are not integrated and rely on manual processes or basic software tools like spreadsheets. A BI platform for small enterprises must, therefore, offer the ability to gather, analyze, and visualize data across these key areas (Akinyemi & Ojetunde, 2020, Olanipekun, 2020). For example, sales analytics can help small businesses track performance across different products, regions, or customer segments. Inventory management can be streamlined with data-driven insights that predict stock levels based on sales trends, allowing for more efficient inventory control. Customer analytics can provide valuable insights into buying behaviors and preferences, helping businesses better understand their customers and target marketing efforts more effectively. Financial analytics should provide small businesses with real-time cash flow, profit margins, and expense tracking, allowing for more informed financial decision-making.

Industry-specific requirements further inform the design of a BI platform tailored to the diverse needs of small enterprises. In retail, for instance, the platform must support real-time stock updates, sales performance tracking, and customer sentiment analysis. The ability to forecast demand and identify top-performing products can be particularly valuable in the retail sector, where margins are tight and competition is fierce. In service-based industries such as hospitality or consulting, the platform should allow for the tracking of customer service performance, employee productivity, and project completion timelines (Abimbade, *et al.*, 2016, Olanipekun & Ayotola, 2019). Manufacturing businesses might require data to monitor production efficiency, equipment maintenance, and supply chain management. The design of the platform should be modular to ensure that it can be customized and scaled according to the specific requirements of these industries. It is essential to provide flexibility so that small businesses in different sectors can choose the functionalities that align with their operational goals, without being overwhelmed by unnecessary features.

The core functional requirements of the platform must ensure that users can quickly and easily derive meaningful insights from their data. One of the most important features of the platform is its ability to offer modular dashboards. These dashboards should be customizable and allow small business owners to track the metrics that matter most to them in real-time. A modular approach ensures that users can add, remove, or rearrange widgets or data visualizations as their needs evolve over time (Akinyemi & Ojetunde, 2019, Olanipekun, Ilori & Ibitoye, 2020). This flexibility enables users to tailor their experience based on the specific nature of their business, which is particularly important for small enterprises that may not have a set, standardized process for managing data.

Real-time data visualization is another key requirement for any BI platform designed for small businesses. Small enterprises often operate in dynamic environments, and being able to access up-to-date data is essential for making timely decisions. The platform must support real-time data streaming and visualization, enabling users to track performance indicators as they evolve throughout the day.

This can include live sales figures, current inventory levels, customer interactions, or financial metrics (Aina, *et al.*, 2023, Dosumu, *et al.*, 2023, Odunaiya, Soyombo & Ogunsola, 2023). The ability to visualize data in a clear and interactive way allows small business owners to quickly identify trends, spot problems, and make adjustments in their operations as needed. Data visualization tools should also provide various chart types, graphs, and heatmaps that make complex data easy to understand, even for users with limited technical backgrounds.

Multi-device accessibility is another important aspect of the platform's core functionality. Small business owners and employees are often on the go, working from various locations such as retail outlets, customer sites, or remote offices. Therefore, the BI platform must be accessible via multiple devices, including desktops, laptops, tablets, and smartphones. Cloud-based solutions are particularly well-suited to this requirement because they allow users to access their data and dashboards from any device with an internet connection (Akinyemi, Adelana & Olurinola, 2022, Ibidunni, *et al.*, 2022, Otokiti, *et al.*, 2022). This feature not only enhances convenience but also supports the real-time monitoring of business activities, enabling users to make data-driven decisions anytime and anywhere. The platform should be responsive, automatically adjusting to the screen size and resolution of different devices to ensure a seamless user experience across platforms.

In addition to core functional requirements, the platform must meet several non-functional requirements that ensure its effectiveness, scalability, and usability. Scalability is one of the most critical non-functional attributes of a subscription-based BI platform for small enterprises. As businesses grow, their data needs will evolve, and the platform must be able to accommodate an increasing volume of data, users, and features. A scalable architecture ensures that the platform can handle more complex analytics and larger datasets as businesses expand, without performance degradation (Chukwuma-Eke, Ogunsola & Isibor, 2022, Muibi & Akinyemi, 2022). This scalability should be seamless, allowing small businesses to start with basic functionalities and gradually add more advanced features, such as predictive analytics, machine learning models, and custom reporting tools, as their needs increase.

Affordability is another essential non-functional requirement, especially for small enterprises with limited budgets. One of the primary advantages of subscription-based models is their cost-effectiveness. Small businesses should not be burdened by large, one-time software licensing fees, but instead should be able to pay a monthly or annual subscription fee that aligns with their actual usage and needs. Offering tiered pricing models that cater to different business sizes and budgets will ensure that even the smallest enterprises can access the platform's basic features (Nwabekee, *et al.*, 2021, Otokiti & Onalaja, 2021). Additionally, a subscription-based pricing structure allows businesses to avoid upfront capital expenditures while ensuring that they only pay for the services they actually use.

Security and compliance are paramount when designing a BI platform that handles sensitive business data. The platform must adhere to industry standards and data protection regulations, such as the General Data Protection Regulation (GDPR) in the European Union or the California Consumer Privacy Act (CCPA). This includes robust data encryption,

secure user authentication, and regular security audits to prevent unauthorized access or data breaches (Adediran, *et al.*, 2022, Babatunde, Okeleke & Ijomah, 2022). Small businesses need assurance that their customer, financial, and operational data is protected from cyber threats. Furthermore, the platform should offer clear and transparent data usage policies, allowing businesses to control how their data is shared and used.

Ease of use is another critical non-functional requirement for a subscription-based BI platform. Small business owners often lack technical expertise, so the platform must be designed with non-technical users in mind. Intuitive interfaces, drag-and-drop functionality, and simplified workflows are essential for making the platform accessible to individuals without a background in data analytics. The user experience should be straightforward, with easy-to-understand visualizations and minimal technical jargon (Akinyemi, 2022, Akinyemi & Ologunada, 2022, Okeleke, Babatunde & Ijomah, 2022). In addition, the platform should include helpful resources such as tutorials, FAQs, and customer support channels to assist users in overcoming any challenges they may encounter.

In conclusion, the design and development of a subscription-based BI platform for small enterprises requires careful attention to both functional and non-functional requirements. By addressing the unique needs of small businesses, offering scalable and customizable features, and ensuring ease of use and affordability, such a platform can democratize access to advanced analytics and empower MSEs to make data-driven decisions. With these requirements in place, the platform can drive productivity, enhance competitiveness, and foster innovation, helping small businesses thrive in an increasingly data-driven world (Ajonbadi, *et al.*, 2015, Olufemi-Phillips, *et al.*, 2020).

### 2.3 Platform architecture and technology stack

The design and development of a subscription-based Business Intelligence (BI) platform for small enterprises requires careful consideration of the platform's architecture and technology stack. The platform must be built on a robust system architecture that ensures scalability, flexibility, and performance, while also providing an intuitive and user-friendly interface. Given the needs of small enterprises, a cloud-based architecture is ideal because it allows businesses to access advanced analytics tools without the need for expensive on-premises infrastructure or IT management (Akinyemi & Ojetunde, 2023, Dosumu, *et al.*, 2023). A well-structured system architecture also facilitates the integration of third-party tools and ensures seamless data processing and storage capabilities. This architecture must be designed with the specific needs of small businesses in mind, enabling them to harness the power of data without technical complexity or excessive costs.

The cloud-based architecture is the foundation of the platform, providing accessibility, scalability, and cost-effectiveness. By hosting the platform on the cloud, small enterprises can take advantage of a subscription model that eliminates the need for large upfront costs and allows businesses to scale their usage according to their needs. Cloud-based solutions also enable automatic updates and maintenance, ensuring that the platform remains up-to-date with the latest features, security patches, and technological advancements (Akinyemi & Aremu, 2010, Otokiti, 2017).

Additionally, the cloud allows for high availability and redundancy, which ensures that the platform remains accessible to users at all times, even in the event of hardware failure or system overload.

In terms of system architecture, a microservices-based approach is ideal for ensuring modularity and flexibility. Microservices are small, independent services that work together to create a larger, cohesive application. This architecture allows for better scalability because each service can be scaled independently according to the demand. For example, if there is an increase in the number of users or a spike in data processing requirements, the analytics service can be scaled up without affecting other components of the platform (Akinyemi & Oke-Job, 2023, Ibidunni, William & Otokiti, 2023). This approach also allows for the platform to be more easily maintained and updated, as changes can be made to individual microservices without disrupting the entire system. It also fosters faster development cycles and allows for the easy integration of new features and functionalities based on user feedback and evolving business needs.

The use of Application Programming Interfaces (APIs) plays a critical role in ensuring that the platform is flexible and interoperable with other systems. APIs serve as the bridge between different components of the platform and allow for seamless integration with third-party tools and external services. These integrations are crucial for small businesses that rely on a variety of software to manage their operations. For example, the platform must be able to integrate with Point of Sale (POS) systems, customer relationship management (CRM) tools, and accounting software, among others (Chukwuma-Eke, Ogunsola & Isibor, 2022, Kolade, *et al.*, 2022). By offering pre-built APIs, the platform can connect with a wide range of third-party applications, ensuring that small enterprises can pull data from their existing systems into the BI platform for analysis. This makes the platform more valuable to small businesses by reducing data silos and improving overall data coherence and usability.

In terms of frontend and backend technologies, it is essential to choose technologies that enable the development of a seamless user experience while ensuring that the platform performs efficiently at scale. On the frontend, modern JavaScript frameworks such as React or Vue.js can be used to build a responsive and interactive user interface. These frameworks allow for the creation of dynamic dashboards and visualizations that update in real time as users interact with the platform (Abimbade, *et al.*, 2017, Aremu, Akinyemi & Babafemi, 2017). The frontend must be designed with the non-technical user in mind, offering a clean and intuitive interface that enables small business owners to easily interpret their data and make informed decisions. Tools such as drag-and-drop functionality, interactive charts, and customizable dashboards will enhance the user experience and ensure that even users with limited technical expertise can make full use of the platform.

On the backend, a combination of technologies can be used to ensure that the platform processes and stores data efficiently while providing the necessary computational power for advanced analytics. A Node.js or Django-based backend could be used to build the platform's server-side functionalities. These technologies are well-suited for handling high concurrency and real-time data processing, which is crucial for BI applications. Additionally, using a

microservices-based architecture means that backend services can be built using different technologies depending on their specific functions (Akinyemi, 2023, Attah, Ogunsola & Garba, 2023). For example, the data processing services could be built using Python, which has a rich ecosystem for data science and analytics, while other services, such as user management or authentication, could be built with technologies such as Node.js or Java.

Data storage and processing are core components of any BI platform, and choosing the right technology stack for these layers is critical for performance and scalability. In a cloud-based BI platform, data can be stored in scalable cloud databases such as Amazon RDS, Google BigQuery, or Azure SQL Database, which allow for automatic scaling based on demand. For data processing, a combination of batch processing and real-time processing technologies will be required (Adedeji, Akinyemi & Aremu, 2019, Otokiti, 2017). Technologies such as Apache Kafka for real-time streaming, combined with Apache Spark for large-scale data processing, can be used to handle the large volumes of data that BI platforms typically deal with. These technologies allow the platform to process data quickly and efficiently, providing users with up-to-date insights without unnecessary delays.

Additionally, the data storage layer must be designed to handle the complexity of structured and unstructured data that small businesses may generate. This can include customer data, sales transactions, inventory information, and marketing data. A hybrid data storage approach, using both relational databases for structured data and NoSQL databases for unstructured data, would be ideal for accommodating the diverse nature of the data. Cloud-based object storage systems, such as Amazon S3 or Google Cloud Storage, can also be used to store large datasets, including documents, images, and raw data files (Akinyemi & Aremu, 2016, Otokiti, 2012).

Integration with third-party tools is a key feature of the platform, allowing small businesses to consolidate their data from multiple sources into a single, unified system. The platform should be capable of connecting seamlessly with commonly used business applications, such as POS systems, CRM tools, and accounting software, through APIs and pre-built connectors. Many small enterprises already use tools such as QuickBooks for accounting, Salesforce for customer management, and Square for payment processing (Akinbola, Otokiti & Adegbuyi, 2014, Otokiti-Ilori & Akorede, 2018). By integrating with these tools, the BI platform can pull data directly from them, reducing the need for manual data entry and ensuring that the analytics are based on accurate, up-to-date information.

For example, an integration with a POS system will allow the platform to pull real-time sales data, which can be used to generate insights into sales trends, inventory levels, and customer preferences. Similarly, connecting with CRM tools enables businesses to gain insights into customer behavior, segment their audience more effectively, and personalize marketing efforts. These integrations are particularly valuable for small businesses that need to make quick decisions based on real-time data, as they streamline the process of data collection and ensure that all relevant information is included in the analysis (Akinyemi & Ologunada, 2023, Ihekoronye, Akinyemi & Aremu, 2023).

In conclusion, the design and development of a subscription-based BI platform for small enterprises requires a carefully

chosen technology stack and system architecture that support scalability, ease of use, and seamless integration. By leveraging cloud-based infrastructure, microservices, and APIs, the platform can provide small businesses with powerful, affordable, and flexible analytics tools. The choice of frontend and backend technologies ensures that the platform can deliver real-time insights through a user-friendly interface, while the data storage and processing layers provide the scalability necessary to handle growing amounts of data. Integrations with third-party tools further enhance the platform's value by consolidating data from various sources into one cohesive system (Ajonbadi, *et al.*, 2015, Otokiti, 2018). This architecture will enable small enterprises to gain the full benefits of data-driven decision-making without the complexity and high costs traditionally associated with BI solutions.

## 2.4 Implementation and pilot testing

The implementation and pilot testing of a subscription-based Business Intelligence (BI) platform for small enterprises is a crucial step in ensuring that the platform delivers value to users and meets their needs effectively. A well-designed pilot project allows the development team to test the platform in real-world conditions, gather feedback, and identify potential areas for improvement before scaling the solution for broader use. The pilot project design should involve a carefully selected group of small enterprise partners who represent the diversity of the target market, ensuring that the platform's functionalities are tested across different industries and business models (Akinyemi & Oke, 2019, Otokiti & Akinbola 2013).

The first step in the pilot project design involves selecting small enterprise partners who are willing to participate and provide feedback on the platform. These partners should vary in terms of size, industry, and geographical location to ensure that the platform is tested in different contexts and environments. The selected enterprises should be representative of the types of businesses that would benefit from the BI platform, including sectors such as retail, services, manufacturing, and agriculture. Additionally, the businesses chosen for the pilot should have a willingness to adopt new technologies and be open to providing feedback on their experiences using the platform (Attah, Ogunsola & Garba, 2022, Babatunde, Okeleke & Ijomah, 2022). It is important that these businesses are not only willing to test the platform but also actively participate in shaping its development by providing insights into their day-to-day operations, challenges, and expectations.

The pilot phase should begin with a detailed onboarding process, where the selected enterprises are introduced to the platform and its features. This process should be designed to ensure that users are comfortable with the platform and fully understand how to use it to meet their specific business needs. The onboarding process should include a combination of user guides, video tutorials, and live demonstrations that walk users through the basic functionalities of the platform, such as data input, dashboard navigation, and report generation. Additionally, a personalized onboarding session with a product specialist can help address any specific questions or concerns that businesses may have (Abimbade, *et al.*, 2022, Aremu, *et al.*, 2022, Oludare, Adeyemi & Otokiti, 2022). This personalized approach is essential for small enterprises, as it ensures that users can quickly get up to speed with the

platform and begin using it to gain insights into their business operations.

The training modules should be designed to cater to different levels of digital literacy and experience, ensuring that all participants can make the most of the platform's features. The modules should be practical, focusing on the specific use cases and business functions that the platform addresses. For example, retail businesses may need training on using the platform to track sales performance, monitor inventory levels, and analyze customer preferences. Service-based businesses may benefit from modules focused on tracking service quality, customer satisfaction, and employee performance (Adedoja, *et al.*, 2017, Aremu, *et al.*, 2018). Manufacturing businesses may require training on using the platform for production scheduling, resource allocation, and supply chain management. By tailoring the training modules to the needs of each business sector, the platform can demonstrate its relevance and value in addressing the specific challenges faced by small enterprises.

Throughout the pilot testing phase, it is important to closely monitor user engagement and track key performance metrics to assess the platform's effectiveness. Engagement metrics should include the frequency of platform usage, the number of active users, and the level of interaction with key features such as dashboards, reports, and data visualizations. These metrics will help determine whether users are actively engaging with the platform and using it to make data-driven decisions (Akinyemi & Aremu, 2017, Otokiti-Ilori, 2018). Decision-making improvement is another critical metric to track, as the primary goal of the platform is to empower small business owners to make more informed and strategic decisions. This can be measured by assessing how businesses are using the data generated by the platform to improve their operations. For example, businesses may use the platform to adjust inventory levels based on real-time sales data, optimize pricing strategies, or identify new market opportunities. Gathering feedback from users through surveys or interviews can provide qualitative insights into how the platform has helped improve decision-making.

Return on investment (ROI) is a key metric that will help determine the success of the pilot project. ROI can be measured by comparing the costs of implementing the platform, including subscription fees, training costs, and any associated operational expenses, with the financial benefits generated by the platform. For example, an increase in sales, cost savings through more efficient inventory management, or improved customer retention can all contribute to the ROI (Nwaimo, *et al.*, 2023, Odunaiya, Soyombo & Ogunsola, 2023, Oludare, *et al.*, 2023). Small enterprises may be hesitant to invest in a subscription-based BI platform, so demonstrating a clear, measurable return on investment is essential for encouraging broader adoption. Additionally, the ROI should not only focus on financial gains but also consider non-financial benefits such as time savings, improved operational efficiency, and enhanced competitiveness. These factors can be particularly important for small enterprises, which may not always prioritize financial metrics over other business outcomes.

As the pilot project progresses, it is essential to gather continuous feedback from participants to identify areas for improvement and refine the platform's features. Regular check-ins with small enterprise partners, through surveys or interviews, will provide valuable insights into the user

experience, platform performance, and any challenges faced by businesses. This feedback loop allows the development team to make iterative improvements, addressing any issues that arise and enhancing the platform to better meet the needs of users (Ajonbadi, Otokiti & Adebayo, 2016, Otokiti & Akorede, 2018). Furthermore, observing how businesses use the platform in their day-to-day operations can reveal additional use cases or features that were not initially anticipated. For example, during the pilot phase, a retail business may discover that they would benefit from integrating customer feedback data into the platform's analytics, leading to the development of a new feature that addresses this need.

The data collected during the pilot phase can also be used to assess the scalability of the platform. Small enterprises vary greatly in terms of size, resources, and technological maturity, so the platform's ability to scale and adapt to different business needs is a critical factor for long-term success. The pilot testing phase provides an opportunity to assess how the platform performs across various use cases and identify any limitations that may arise as businesses scale up their usage (Abimbade, *et al.*, 2023, Ijomah, Okeleke & Babatunde, 2023, Otokiti, 2023). If the platform can handle increased data volumes, more users, and more complex business requirements without compromising performance, it will be better positioned for broader adoption.

At the end of the pilot phase, a comprehensive evaluation should be conducted to assess the overall success of the project. This evaluation should include a review of the performance metrics, user feedback, and ROI, as well as a comparison of the platform's effectiveness with other BI solutions available to small businesses. Based on the findings of this evaluation, adjustments can be made to the platform's features, pricing, and support structures to optimize its value for small enterprises. If the pilot project proves successful, the next step would involve scaling the platform to a larger user base, incorporating any necessary refinements, and developing a marketing strategy to attract new subscribers (Akinyemi & Ebimomi, 2020).

In conclusion, the implementation and pilot testing of a subscription-based BI platform for small enterprises requires careful planning and execution to ensure that the platform meets the needs of businesses and delivers tangible value. By designing a pilot project that includes a structured onboarding process, tailored training modules, and robust performance tracking, the development team can gather valuable insights that inform the platform's continued evolution. Key performance metrics, such as engagement, decision-making improvement, and ROI, will help assess the platform's effectiveness and determine its potential for wider adoption (Adetunmbi & Owolabi, 2021, Arotiba, Akinyemi & Aremu, 2021). Through iterative feedback and refinement, the platform can be optimized to support small businesses in making data-driven decisions, improving operational efficiency, and driving growth.

## 2.5 Results and Analysis

The design and development of a subscription-based Business Intelligence (BI) platform for small enterprises culminates in a pilot testing phase where the platform is evaluated based on its performance outcomes, user satisfaction, and business process improvements. This phase provides critical insights into the platform's effectiveness and

highlights areas for further development. The results from the pilot tests help measure the platform's potential to deliver value to small businesses and determine whether it meets the needs of the target user base. This analysis also reveals the platform's ability to enhance business processes, empower small businesses with data-driven insights, and offer measurable improvements in operational efficiency (Abimbade, *et al.*, 2023, George, Dosumu & Makata, 2023). During the pilot testing phase, the platform's performance outcomes were closely monitored to assess its functionality, scalability, and responsiveness under real-world conditions. Small enterprise partners were selected across various industries, such as retail, services, and manufacturing, to ensure the platform was tested in different operational contexts. The primary performance outcomes focused on the platform's ability to handle multiple users, process real-time data, and generate accurate, actionable insights across a range of business functions (Akinbola & Otokiti, 2012). Key performance indicators (KPIs) for the platform included the speed and reliability of data processing, the accuracy of data visualizations, and the responsiveness of the system when handling varying data volumes. The system was required to support real-time updates, especially for industries such as retail, where inventory management and sales data need to be updated dynamically. Early results showed that the platform performed well under normal usage conditions, with minimal delays in data processing, and was able to provide real-time insights across different data points, such as sales trends, customer behavior, and inventory levels.

However, some challenges were noted during the pilot, particularly with respect to the scalability of the platform. In instances where businesses experienced higher data volumes—due to peak sales periods or large customer databases—the platform faced occasional slowdowns in data refresh rates. While the system still provided valuable insights, these delays were a concern for businesses that relied on near-instantaneous data for decision-making. As a result, the development team focused on refining the system's backend architecture to improve the speed of data processing and ensure that the platform could seamlessly scale to meet the needs of businesses as they grew (Nwaimo, Adewumi & Ajiga, 2022). The integration of more efficient data management practices, such as optimizing data queries and enhancing database indexing, was recommended to address these performance issues.

User satisfaction and feedback were critical in evaluating the overall effectiveness of the platform. Small business owners and employees who participated in the pilot were encouraged to provide detailed feedback on their experiences, including the ease of use, the relevance of the features, and the impact on their decision-making. The results of the feedback indicated a high level of satisfaction, particularly regarding the user-friendly interface and the intuitive design of the platform (Adelana & Akinyemi, 2021, Esiri, 2021, Odunaiya, Soyombo & Ogunsola, 2021). Many users appreciated the customizable dashboards, which allowed them to focus on the specific metrics most relevant to their business operations, such as sales performance or inventory turnover. The ability to create tailored reports with simple drag-and-drop features was particularly praised, as it enabled users without technical backgrounds to extract meaningful insights from their data. However, some users expressed the need for additional training materials and support. Although the onboarding

process and training modules had been designed to be comprehensive, some participants requested more in-depth resources on advanced functionalities, such as predictive analytics and trend forecasting. This feedback emphasized the importance of ongoing education and support to ensure that users can continue to fully utilize the platform's capabilities over time. To address these concerns, the development team proposed offering more detailed tutorials, including video guides and step-by-step walkthroughs, to help users navigate more complex features (Akinyemi & Ebimomi, 2021, Chukwuma-Eke, Ogunsola & Isibor, 2021). Additionally, expanding the availability of customer support services, such as live chat and personalized assistance, would further enhance user satisfaction and reduce potential barriers to usage.

Business process improvements observed during the pilot phase were significant, with users reporting positive changes in efficiency, decision-making, and overall business performance. In the retail sector, businesses that used the platform to track inventory in real-time were able to reduce stockouts and overstocking, leading to improved inventory management and reduced costs (Ajibola & Olanipekun, 2019). The insights provided by the platform allowed retail business owners to identify slow-moving products and adjust their purchasing decisions accordingly, optimizing stock levels and minimizing waste. Additionally, by analyzing customer purchasing behavior, businesses were able to tailor promotions and marketing efforts more effectively, resulting in higher conversion rates and increased customer loyalty.

In the service industry, the platform's ability to track employee performance and customer satisfaction metrics led to improvements in service delivery. Small service businesses, such as consulting firms or repair services, used the platform to monitor project progress, assess customer feedback, and manage resource allocation. The ability to visualize project timelines and track service quality indicators in real-time helped business owners make informed decisions about staffing and scheduling, improving overall efficiency and customer satisfaction. The platform also facilitated more accurate forecasting of demand, allowing service businesses to better plan for peak periods and allocate resources more effectively (Akinyemi & Ogundipe, 2022, Ezekiel & Akinyemi, 2022, Tella & Akinyemi, 2022).

Manufacturing businesses observed notable improvements in production efficiency and cost management. By using the platform to monitor key performance indicators, such as production speed, downtime, and resource utilization, businesses were able to identify inefficiencies and areas for improvement. The platform enabled manufacturers to implement more effective predictive maintenance schedules, reducing machine downtime and preventing costly repairs. Additionally, by analyzing supply chain data, businesses were able to identify bottlenecks and optimize inventory levels, reducing lead times and improving the overall flow of materials (Adeniran, *et al.*, 2022, Aniebonam, *et al.*, 2022, Otokiti & Onalaja, 2022).

These business process improvements were not limited to operational efficiencies; the platform also contributed to improved decision-making capabilities across all sectors. Business owners and managers who participated in the pilot reported feeling more confident in their ability to make data-driven decisions. With access to real-time insights and the ability to easily visualize trends and patterns, they were able

to identify new opportunities, mitigate risks, and make informed strategic decisions. The platform empowered them to move beyond intuition-based decision-making and embrace a more data-driven approach, ultimately leading to better business outcomes (Akinbola, *et al.*, 2020, Ogundare, Akinyemi & Aremu, 2021).

In addition to operational and financial improvements, the pilot also highlighted the broader potential for small enterprises to benefit from data democratization. By providing small businesses with access to advanced analytics tools, the platform empowered them to leverage the same capabilities that were once reserved for larger corporations with substantial resources. The pilot demonstrated that small businesses, regardless of their size or industry, could benefit from data-driven insights, allowing them to improve performance, compete more effectively, and grow sustainably (Akinyemi & Ebimomi, 2020, Aremu & Laolu, 2014).

In conclusion, the pilot testing phase of the subscription-based BI platform for small enterprises provided valuable insights into the platform's performance, user satisfaction, and business impact. While the platform demonstrated strong potential in improving business operations and decision-making, performance issues related to scalability were identified and addressed through further development. User feedback confirmed that the platform was intuitive and accessible, although additional training resources were needed to ensure users could fully leverage advanced features (Akinyemi & Salami, 2023, Attah, Ogunsola & Garba, 2023, Otokiti, 2023). The business process improvements observed across various sectors—such as retail, services, and manufacturing—highlight the significant potential of data democratization to empower small businesses and enhance their competitiveness in the data-driven economy. Moving forward, the platform will continue to evolve based on user feedback, ensuring that it meets the needs of small enterprises and drives tangible business outcomes.

## 2.6 Deployment and scalability plan

The successful deployment and scalability of a subscription-based Business Intelligence (BI) platform for small enterprises depend on a well-structured plan that ensures the platform remains accessible, affordable, and functional as it grows. Small businesses often operate under significant resource constraints, so it is essential that the deployment plan includes clear pricing models, robust support services, and a strategic roadmap for expansion across different sectors and regions. The deployment and scalability strategy must also take into account the flexibility required to meet the diverse needs of small enterprises in varying stages of growth, across multiple industries and geographies (Akinyemi, Ogundipe & Adelana, 2021, Kolade, *et al.*, 2021).

The subscription tiers and pricing model are foundational to the platform's accessibility and widespread adoption. A tiered pricing structure ensures that small enterprises with different needs and budgets can access the platform's core functionalities without being burdened by high upfront costs. For example, the basic tier can be designed for businesses that require only essential features such as data visualization, sales tracking, and basic reporting. This entry-level package should be priced affordably to attract small businesses that may have limited financial resources. As the enterprise grows

or requires more advanced analytics capabilities, such as predictive modeling, multi-user access, or integration with other business tools, it can move to higher subscription tiers that offer additional features and more extensive support (Akinyemi & Ogundipe, 2023, Aniebonam, *et al.*, 2023, George, Dosumu & Makata, 2023).

The mid-tier subscription could be aimed at small businesses that have begun to scale and require more sophisticated analytics, including real-time data integration and forecasting capabilities. This tier would offer expanded features, such as custom dashboards, multi-device accessibility, and advanced data processing tools, while still maintaining affordability for small enterprises that are looking to invest in business intelligence but cannot afford enterprise-level solutions (Adisa, Akinyemi & Aremu, 2019, Famaye, Akinyemi & Aremu, 2020). Finally, the highest tier should cater to growing businesses that require full access to the platform's advanced capabilities, such as AI-powered insights, machine learning algorithms, and comprehensive integrations with third-party tools. This tier would provide the most comprehensive support and access to enterprise-level functionalities, ensuring that businesses at this stage can continue to leverage the platform to its fullest potential.

Each subscription tier should be priced according to the features provided, the size of the business, and its usage requirements. The goal is to create a pricing model that is flexible and scalable, accommodating businesses of all sizes and allowing them to upgrade as their needs evolve. Additionally, offering a free trial period or freemium model for the basic tier can encourage businesses to try the platform, build trust, and become familiar with its benefits before committing to a paid subscription (Akinyemi, 2013, Ilori & Olanipekun, 2020). This also ensures that small enterprises can see the value of the platform before making a financial investment, increasing the likelihood of long-term adoption.

In addition to a tiered pricing structure, providing robust support services is critical for ensuring that small businesses can successfully deploy, use, and continue to benefit from the BI platform. Customer care and technical support must be easily accessible, responsive, and capable of assisting with common issues that may arise during the deployment phase and beyond. Small business owners may not have the technical expertise to troubleshoot or set up complex systems, so offering dedicated support services—such as live chat, email support, and phone assistance—can make the platform more user-friendly (Adeniran, Akinyemi & Aremu, 2016, James, *et al.*, 2019). Additionally, providing in-platform support such as guided tutorials, FAQs, and a knowledge base can empower users to resolve issues independently and learn how to fully leverage the platform's capabilities.

Analytics consulting services can also be a valuable addition to the support offerings. These services would allow businesses to engage with data experts who can assist in interpreting data, building custom reports, and tailoring analytics to the unique needs of the business. This level of personalized service can help small enterprises make the most of the platform's data-driven insights and apply them effectively to their operations. Consulting services could be offered as part of higher-tier subscription plans or as an add-on service for businesses that need more hands-on support. This provides flexibility for businesses that may require specialized help as they grow and develop their data strategies (Akinyemi & Ezekiel, 2022, Attah, *et al.*, 2022).

Moreover, regular updates and improvements are essential for maintaining the relevance and functionality of the platform. As business needs change and new technologies emerge, it is important that the platform evolves to meet the demands of the market. Regular software updates—whether through bug fixes, feature enhancements, or new capabilities—ensure that small enterprises can continue to benefit from the latest advancements in BI and data analytics. These updates should be rolled out seamlessly and require minimal effort from the user, ensuring that businesses can continue using the platform without disruption (Akinyemi & Abimbade, 2019, Lawal, Ajonbadi & Otokiti, 2014).

Scalability is a key component of the deployment and expansion plan, as the platform must be able to grow alongside the businesses it serves. As small enterprises expand, their data needs will evolve, requiring more complex analytics, a larger volume of data processing, and greater integration with other business systems. A scalable platform is built with flexibility in mind, allowing businesses to easily transition from basic to advanced features as their needs increase. This scalability can be achieved through the use of cloud-based infrastructure, which provides the necessary computational power and storage capacity to handle growing data volumes. Cloud services are inherently scalable, as they allow resources to be increased or decreased based on demand (Chukwuma-Eke, Ogunsola & Isibor, 2022, Olojede & Akinyemi, 2022). This ensures that small enterprises only pay for what they use, making it more affordable as they scale.

To support scalability across sectors and regions, the platform must be adaptable to different business types and environments. A roadmap for scaling the platform should begin with a phased approach, targeting specific industries that are most likely to benefit from BI tools, such as retail, service-based businesses, and manufacturing. Each sector has unique data requirements, and the platform must be customizable to address these needs. For example, the platform should offer sector-specific templates, reports, and KPIs that are tailored to the specific goals and challenges of different industries (Nwabekee, *et al.*, 2021, Odunaiya, Soyombo & Ogunsola, 2021). As businesses in these sectors begin to adopt the platform, their success stories can serve as case studies to promote the platform to other businesses within the same sector, encouraging wider adoption.

Once the platform has been successfully deployed within specific industries, the next step is to scale across regions. This may involve localizing the platform for different languages, currencies, and regulatory environments. For example, businesses in different countries may require compliance with specific data protection laws such as the GDPR in Europe or CCPA in California. Ensuring that the platform adheres to regional regulations is crucial for gaining the trust of users and complying with legal requirements. Localization also extends to customer support, ensuring that businesses in different regions can access the platform in their preferred language and time zone (Akinyemi, 2018, Olaiya, Akinyemi & Aremu, 2017). A strong customer support system, including multilingual support staff and region-specific help centers, will be necessary for ensuring smooth scaling and adoption.

Expanding into new regions also involves building strategic partnerships with local organizations, such as industry associations, financial institutions, and government agencies,

to promote the platform and drive adoption. These partnerships can provide the credibility and market penetration needed to build awareness and trust in new regions, while also helping small enterprises understand the benefits of BI tools for their specific business needs.

In conclusion, the deployment and scalability of a subscription-based BI platform for small enterprises requires careful planning and execution across multiple dimensions. The pricing model must be flexible and accessible, providing businesses with the option to scale according to their needs. Support services, including customer care, analytics consulting, and software updates, are essential to ensuring that users can maximize the platform's value. Scalability is a critical factor for accommodating the growth of small businesses, with cloud-based infrastructure providing the necessary flexibility to scale the platform effectively (Akinyemi & Ojetunde, 2020, Olanipekun, 2020). The roadmap for scaling the platform should include sector-specific adaptations and regional expansions, supported by strategic partnerships that foster growth and adoption. By following a comprehensive deployment and scalability plan, the platform can meet the evolving needs of small enterprises and help them thrive in an increasingly data-driven economy.

### 3. Conclusion

The design and development of a subscription-based Business Intelligence (BI) platform for small enterprises has the potential to significantly transform how small businesses operate and compete in an increasingly data-driven world. By offering an affordable, scalable, and user-friendly solution, the platform can bridge the digital divide that often exists between large corporations with access to advanced analytics and small businesses that struggle with limited resources and expertise. The subscription-based model makes this tool accessible to businesses of all sizes, allowing them to access sophisticated analytics without the burden of expensive upfront costs. Furthermore, the platform's flexibility and modular design enable small enterprises to tailor the solution to their specific needs, whether for sales tracking, customer analytics, or inventory management.

One of the primary contributions of this platform is its ability to empower small businesses with data-driven insights that can improve decision-making, enhance operational efficiency, and drive business growth. By integrating data across different business functions and providing real-time analysis, the platform allows small enterprises to make more informed decisions, optimize resources, and improve customer experiences. This level of access to advanced analytics, once reserved for larger organizations, can help small businesses level the playing field and gain a competitive advantage. Additionally, the ease of use and affordability of the platform ensure that even businesses with limited technical expertise can benefit from the power of data analytics, helping them to thrive in a digital economy.

The potential impact of this platform on digital transformation for small businesses is profound. As small enterprises increasingly adopt digital tools and embrace data-driven strategies, they can enhance their productivity, streamline their operations, and adapt more quickly to market changes. The platform provides an essential step toward the digital inclusion of small businesses, helping them become more agile and responsive to the needs of their customers and the challenges of the market. By democratizing access to

advanced analytics, the platform helps foster innovation and business growth, enabling small enterprises to participate more fully in the global digital economy.

Despite the significant benefits, there are limitations to the current platform, particularly in terms of its scalability for very large datasets or complex analytics needs as businesses continue to grow. While the platform offers a robust foundation for small enterprises, further developments may be required to enhance its capabilities, such as integrating more advanced machine learning tools or artificial intelligence features. Additionally, the platform's success hinges on continuous updates and the ability to integrate with a wide range of third-party tools, ensuring that it remains adaptable to the changing needs of businesses and the evolving digital landscape. Future development pathways could involve expanding the platform's features to support more industries, improving real-time data processing speeds, and offering more personalized support services to ensure users can maximize the platform's potential.

In conclusion, the subscription-based BI platform for small enterprises represents a significant step forward in making data-driven decision-making tools accessible to businesses that have historically been excluded from such capabilities. By offering an affordable, scalable, and user-friendly solution, the platform has the potential to drive digital transformation across a wide range of industries, empowering small businesses to optimize operations, enhance competitiveness, and contribute to economic growth. While there are areas for improvement, the ongoing development of the platform will continue to address the evolving needs of small enterprises, helping them to thrive in an increasingly digital and data-driven world.

#### 4. References

1. Abimbade D, Akinyemi AL, Obideyi E, Olubusayo F. Use of web analytic in open and distance learning in the University of Ibadan, Nigeria. *African Journal of Theory and Practice of Educational Research*. 2016;3.
2. Abimbade OA, Akinyemi AL, Olaniyi OA, Ogundipe T. Effect of mnemonic instructional strategy on achievement in English language among junior secondary students in Oyo State, Nigeria. *Journal of Educational Media and Technology*. 2023;28(1):1-8.
3. Abimbade OA, Olasunkanmi IA, Akinyemi LA, Lawani EO. Effects of two modes of digital storytelling instructional strategy on pupils' achievement in social studies. *TechTrends*. 2023;67(3):498-507.
4. Abimbade O, Akinyemi A, Bello L, Mohammed H. Comparative effects of an individualized computer-based instruction and a modified conventional strategy on students' academic achievement in organic chemistry. *Journal of Positive Psychology and Counseling*. 2017;1(2):1-19.
5. Abimbade O, Olurinola OD, Akinyemi AL, Adepoju OD, Aina SAO. Spirituality and prosocial behavior: The influence of prosocial media and empathy. In: *Proceedings of the American Educational Research Association (AERA) Annual Meeting*; 2022; San Diego, California, USA.
6. Adebayo AS, Chukwurah N, Ajayi OO. Proactive ransomware defense frameworks using predictive analytics and early detection systems for modern enterprises.
7. Adedeji AS, Akinyemi AL, Aremu A. Effects of gamification on senior secondary school one students' motivation and achievement in Physics in Ayedaade Local Government Area of Osun State. In: *Research on contemporary issues in Media Resources and Information and Communication Technology Use*; 2019. p. 501-519.
8. Adediran EM, Aremu A, Amosun PAA, Akinyemi AL. The impacts of two modes of video-based instructional packages on the teaching skills of social studies pre-service teachers in South-Western Nigeria. *Journal of Educational Media and Technology*. 2022;27(1-2):38-50.
9. Adedoja G, Abimbade O, Akinyemi A, Bello L. Discovering the power of mentoring using online collaborative technologies. *Advancing Education Through Technology*. 2017:261-281.
10. Adelana OP, Akinyemi AL. Artificial intelligence-based tutoring systems utilization for learning: a survey of senior secondary students' awareness and readiness in Ijebu-Ode, Ogun State. *UNIZIK Journal of Educational Research and Policy Studies*. 2021;9:16-28.
11. Adeniran BI, Akinyemi AL, Aremu A. The effect of Webquest on civic education of junior secondary school students in Nigeria. In: *Proceedings of INCEDI 2016 Conference*; 2016 Aug 29-31. p. 109-120.
12. Adeniran BI, Akinyemi AL, Morakinyo DA, Aremu A. The effect of Webquest on civic education of junior secondary school students in Nigeria. *Bilingual Journal of Multidisciplinary Studies*. 2022;5:296-317.
13. Adetunmbi LA, Owolabi PA. Online learning and mental stress during the Covid-19 pandemic lockdown: Implication for undergraduates' mental well-being. *Unilorin Journal of Lifelong Education*. 2021;5(1):148-163.
14. Adewumi A, Nwaimo CS, Ajiga D, Agho MO, Iwe KA. AI and data analytics for sustainability: A strategic framework for risk management in energy and business. *International Journal of Science and Research Archive*. 2023;3(12):767-773.
15. Adisa IO, Akinyemi AL, Aremu A. West African Journal of Education. *West African Journal of Education*. 2019;39:51-64.
16. Aina SA, Akinyemi AL, Olurinola O, Aina MA, Oyeniran O. The influences of feeling of preparedness, mentors, and mindsets on preservice teachers' value of teaching practice. *Psychology*. 2023;14(5):687-708.
17. Ajibola KA, Olanipekun BA. Effect of access to finance on entrepreneurial growth and development in Nigeria among "YOU WIN" beneficiaries in SouthWest, Nigeria. *Ife Journal of Entrepreneurship and Business Management*. 2019;3(1):134-149.
18. Ajonbadi HA, Lawal AA, Badmus DA, Otokiti BO. Financial control and organisational performance of the Nigerian small and medium enterprises (SMEs): A catalyst for economic growth. *American Journal of Business, Economics and Management*. 2014;2(2):135-143.
19. Ajonbadi HA, Mojeed-Sanni BA, Otokiti BO. Sustaining competitive advantage in medium-sized enterprises (MEs) through employee social interaction and helping behaviours. *Journal of Small Business and Entrepreneurship*. 2015;3(2):1-16.

20. Ajonbadi HA, Mojeed-Sanni BA, Otokiti BO. Sustaining competitive advantage in medium-sized enterprises (MEs) through employee social interaction and helping behaviours. *Business and Economic Research Journal*. 2015;36(4).
21. Ajonbadi HA, Otokiti BO, Adebayo P. The efficacy of planning on organisational performance in the Nigeria SMEs. *European Journal of Business and Management*. 2016;24(3).
22. Akinbola OA, Otokiti BO. Effects of lease options as a source of finance on profitability performance of small and medium enterprises (SMEs) in Lagos State, Nigeria. *International Journal of Economic Development Research and Investment*. 2012;3(3).
23. Akinbola OA, Otokiti BO, Akinbola OS, Sanni SA. Nexus of born global entrepreneurship firms and economic development in Nigeria. *Ekonomicko-manazerske spektrum*. 2020;14(1):52-64.
24. Akinbola OA, Otokiti BO, Adegbuyi OA. Market based capabilities and results: Inference for telecommunication service businesses in Nigeria. *The European Journal of Business and Social Sciences*. 2014;12(1).
25. Akinyemi AL. Development and utilisation of an instructional programme for impacting competence in language of graphics orientation (LOGO) at primary school level in Ibadan, Nigeria [dissertation]. 2013.
26. Akinyemi AL. Computer programming integration into primary education: Implication for teachers. In: *Proceedings of STAN Conference*; 2018. p. 216-225.
27. Akinyemi AL. Teachers' educational media competence in the teaching of English language in preprimary and primary schools in Ibadan North Local Government Area, Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies*. 2022;13(1):15-23.
28. Akinyemi AL. Perception and attitudes of secondary school science teachers towards robotics integration in the teaching and learning process. *Journal of Science, Mathematics and Technology Education*. 2023;4:140-150.
29. Akinyemi AL, Abimbade OA. Attitude of secondary school teachers to technology usage and the way forward. In: *Africa and Education, 2030 Agenda*; 2019. p. 409-420.
30. Akinyemi AL, Aremu A. Integrating LOGO programming into Nigerian primary school curriculum. *Journal of Children-In-Science and Technology*. 2010;6(1):24-34.
31. Akinyemi AL, Aremu A. LOGO usage and the perceptions of primary school teachers in Oyo State, Nigeria. In: *Proceedings of the International Conference on Education Development and Innovation (INCEDI)*; 2016; Accra, Ghana. p. 455-462.
32. Akinyemi AL, Aremu A. Challenges of teaching computer programming in Nigerian primary schools. *African Journal of Education Research*. 2017;21(1-2):118-124.
33. Akinyemi AL, Ebimomi OE. Effects of video-based instructional strategy (VBIS) on students' achievement in computer programming among secondary school students in Lagos State, Nigeria. *West African Journal of Open & Flexible Learning*. 2020;9(1):123-125.
34. Akinyemi AL, Ebimomi OE. Influence of gender on students' learning outcomes in computer studies. *Education Technology*. 2020.
35. Akinyemi AL, Ebimomi OE. Influence of gender on students' learning outcomes in computer programming in Lagos State junior secondary schools. *East African Journal of Educational Research and Policy*. 2021;16:191-204.
36. Akinyemi AL, Ebiseni EO. Effects of video-based instructional strategy (VBIS) on junior secondary school students' achievement in computer programming in Lagos State, Nigeria. *West African Journal of Open and Flexible Learning*. 2020;9(1):123-136.
37. Akinyemi AL, Ezekiel OB. University of Ibadan lecturers' perception of the utilisation of artificial intelligence in education. *Journal of Emerging Trends in Educational Research and Policy Studies*. 2022;13(4):124-131.
38. Akinyemi AL, Ogundipe T. Effects of Scratch programming language on students' attitude towards geometry in Oyo State, Nigeria. In: *Innovation in the 21st Century: Resetting the Disruptive Educational System*; 2022. p. 354-361.
39. Akinyemi AL, Ogundipe T. Impact of experiential learning strategy on senior secondary students' achievement in hypertext markup language (HTML) in Oyo State, Nigeria. *Nigerian Open, Distance and e-Learning Journal*. 2023;1:65-74.
40. Akinyemi AL, Ojetunde SM. Techno-pedagogical models and influence of adoption of remote learning platforms on classical variables of education inequality during COVID-19 pandemic in Africa. *Journal of Positive Psychology and Counselling*. 2020;7(1):12-27.
41. Akinyemi AL, Ojetunde SM. Modeling higher institutions' response to the adoption of online teaching-learning platforms teaching in Nigeria. *Nigerian Open, Distance and e-Learning Journal*. 2023;1:1-12.
42. Akinyemi AL, Oke AE. The use of online resources for teaching and learning: Teachers' perspectives in Egbeda Local Government Area, Oyo State. *Ibadan Journal of Educational Studies*. 2019;16(1-2).
43. Akinyemi AL, Oke-Job MD. Effect of flipped learning on students' academic achievement in computer studies. *The Journal of Positive Psychology and Counselling*. 2023;12(1):37-48.
44. Akinyemi AL, Oke-Job MD. The impact of flipped learning on students' level of engagement in computer studies classroom, in Oyo State, Nigeria. *African Multidisciplinary Journal of Development*. 2023;12(2):168-176.
45. Akinyemi AL, Ologunada TM. Perceptions of teachers and students on the use of interactive learning instructional package (ILIP) in Nigeria senior secondary schools in Ondo State, Nigeria. *West African Journal of Open and Flexible Learning*. 2023;11(2):45-72.
46. Akinyemi AL, Salami IA. Efficacy of logo instructional package on digital competency skills of lower primary school in Oyo State, Nigeria. *Unilorin Journal of Lifelong Education*. 2023;7(1):116-131.
47. Akinyemi AL, Adelana OP, Olurinola OD. Use of infographics as teaching and learning tools: Survey of pre-service teachers' knowledge and readiness in a Nigerian university. *Journal of ICT in Education*. 2022;9(1):117-130.

48. Akinyemi AL, Ogundipe T, Adelana OP. Effect of scratch programming language (SPL) on achievement in geometry among senior secondary students in Ibadan, Nigeria. *Journal of ICT in Education*. 2021;8(2):24-33.
49. Akinyemi A, Ojetunde SM. Comparative analysis of networking and e-readiness of some African and developed countries. *Journal of Emerging Trends in Educational Research and Policy Studies*. 2019;10(2):82-90.
50. Akinyemi LA, Ologunada. Impacts of interactive learning instructional package on secondary school students' academic achievement in basic programming. *Ibadan Journal of Educational Studies*. 2022;19(2):67-74.
51. Akter S, Wamba S. Big data analytics in e-commerce: a systematic review and agenda for future research. *Electronic Markets*. 2016;26(2):173-194.
52. Aniebonam EE, Nwabekee US, Ogunsola OY, Elumilade OO. *International Journal of Management and Organizational Research*. 2022.
53. Aniebonam EE, Chukwuba K, Emeka N, Taylor G. Transformational leadership and transactional leadership styles: systematic review of literature. *International Journal of Applied Research*. 2023;9(1):7-15.
54. Aremu A, Laolu AA. Language of graphics orientation (LOGO) competencies of Nigerian primary school children: Experiences from the field. *Journal of Educational Research and Reviews*. 2014;2(4):53-60.
55. Aremu A, Adedaja S, Akinyemi A, Abimbade AO, Olasunkanmi IA. An overview of educational technology unit, Department of science and technology education, Faculty of education, University of Ibadan. 2018.
56. Aremu A, Akinyemi AL, Babafemi E. Gaming approach: A solution to mastering basic concepts of building construction in technical and vocational education in Nigeria. In: *Advancing Education Through Technology*; 2017. p. 659-676.
57. Aremu A, Akinyemi LA, Olasunkanmi IA, Ogundipe T. Raising the standards/quality of UBE teachers through technology-mediated strategies and resources. *Emerging Perspectives on Universal Basic Education. A Book of Readings on Basic Education in Nigeria*. 2022:139-149.
58. Arotiba OO, Akinyemi AL, Aremu A. Teachers' perception on the use of online learning during the Covid-19 pandemic in secondary schools in Lagos, Nigeria. *Journal of Education and Training Technology*. 2021;10(3):1-10.
59. Attah JO, Mbakuuv SH, Ayange CD, Achive GW, Onoja VS, Kaya PB, *et al.* Comparative recovery of cellulose pulp from selected agricultural wastes in Nigeria to mitigate deforestation for paper. *European Journal of Material Science*. 2022;10(1):23-36.
60. Attah RU, Ogunsola OY, Garba BMP. The future of energy and technology management: Innovations, data-driven insights, and smart solutions development. *International Journal of Science and Technology Research Archive*. 2022;3(2):281-296.
61. Attah RU, Ogunsola OY, Garba BMP. Advances in sustainable business strategies: Energy efficiency, digital innovation, and net-zero corporate transformation. *Iconic Research and Engineering Journals*. 2023;6(7):450-469.
62. Attah RU, Ogunsola OY, Garba BMP. Leadership in the digital age: Emerging trends in business strategy, innovation, and technology integration. *Iconic Research and Engineering Journals*. 2023;6(9):389-411.
63. Attah RU, Ogunsola OY, Garba BMP. Revolutionizing logistics with artificial intelligence: Breakthroughs in automation, analytics, and operational excellence. *Iconic Research and Engineering Journals*. 2023;6(12):1471-1493.
64. Babatunde SO, Okeleke PA, Ijomah TI. Influence of brand marketing on economic development: A case study of global consumer goods companies. 2022.
65. Babatunde SO, Okeleke PA, Ijomah TI. The role of digital marketing in shaping modern economies: An analysis of e-commerce growth and consumer behavior. 2022.
66. Chernova O, Mitrofanovab I, Pleshakovad M, Batmanovac V. Use of big data analytics for small and medium sized businesses. *Serbian Journal of Management*. 2023;18(1):93-109.
67. Chukwuma-Eke EC, Ogunsola OY, Isibor NJ. Designing a robust cost allocation framework for energy corporations using SAP for improved financial performance. *International Journal of Multidisciplinary Research and Growth Evaluation*. 2021;2(1):809-822.
68. Chukwuma-Eke EC, Ogunsola OY, Isibor NJ. A conceptual approach to cost forecasting and financial planning in complex oil and gas projects. *International Journal of Multidisciplinary Research and Growth Evaluation*. 2022;3(1):819-833.
69. Chukwuma-Eke EC, Ogunsola OY, Isibor NJ. A conceptual framework for financial optimization and budget management in large-scale energy projects. *International Journal of Multidisciplinary Research and Growth Evaluation*. 2021;2(1):823-834.
70. Chukwuma-Eke EC, Ogunsola OY, Isibor NJ. Developing an integrated framework for SAP-based cost control and financial reporting in energy companies. *International Journal of Multidisciplinary Research and Growth Evaluation*. 2022;3(1):805-818.
71. Chukwuma-Eke EC, Ogunsola OY, Isibor NJ. Conceptualizing digital financial tools and strategies for effective budget management in the oil and gas sector. *International Journal of Management and Organizational Research*. 2023;2(1):230-246.
72. Dare SO, Abimbade A, Abimbade OA, Akinyemi A, Olasunkanmi IA. Computer literacy, attitude to computer and learning styles as predictors of physics students' achievement in senior secondary schools of Oyo State. 2019.
73. Dosumu RE, George OO, Makata CO. Data-driven customer value management: Developing a conceptual model for enhancing product lifecycle performance and market penetration. *International Journal of Management and Organizational Research*. 2023;2(1):261-266.
74. Esiri S. A strategic leadership framework for developing esports markets in emerging economies. *International Journal of Multidisciplinary Research and Growth Evaluation*. 2021;2(1):717-724.
75. Ezekiel OB, Akinyemi AL. Utilisation of artificial intelligence in education: The perception of university of Ibadan lecturers. *Journal of Global Research in*

- Education and Social Science. 2022;16(5):32-40.
76. Famaye T, Akinyemi AI, Aremu A. Effects of computer animation on students' learning outcomes in four core subjects in basic education in Abuja, Nigeria. *African Journal of Educational Research*. 2020;22(1):70-84.
  77. George OO, Dosumu RE, Makata CO. Integrating multi-channel brand communication: A conceptual model for achieving sustained consumer engagement and loyalty. *International Journal of Management and Organizational Research*. 2023;2(1):254-260.
  78. Ibidunni AS, Ayeni AWA, Ogundana OM, Otokiti B, Mohalajeng L. Survival during times of disruptions: Rethinking strategies for enabling business viability in the developing economy. *Sustainability*. 2022;14(20):13549.
  79. Ibidunni AS, Ayeni AAW, Otokiti B. Investigating the adaptiveness of MSMEs during times of environmental disruption: Exploratory study of a capabilities-based insights from Nigeria. *Journal of Innovation, Entrepreneurship and the Informal Economy*. 2023;10(1):45-59.
  80. Ihekoronye CP, Akinyemi AL, Aremu A. Effect of two modes of simulation-based flipped classroom strategy on learning outcomes of private universities' pre-degree physics students in Southwestern Nigeria. *Journal of Global Research in Education and Social Science*. 2023;17(3):11-18.
  81. Ijomah TI, Okeleke PA, Babatunde SO. The influence of integrated marketing strategies on the adoption and success of IT products: A comparative study of B2B and B2C markets. 2023.
  82. Ilori MO, Olanipekun SA. Effects of government policies and extent of its implementations on the foundry industry in Nigeria. *IOSR Journal of Business Management*. 2020;12(11):52-59.
  83. James AT, Phd OKA, Ayobami AO, Adeagbo A. Raising employability bar and building entrepreneurial capacity in youth: a case study of national social investment programme in Nigeria. *Covenant Journal of Entrepreneurship*. 2019.
  84. Kiełtyka L, Smolağ K. Analysis of business intelligence solutions in the SME sectors. *Applied Mechanics and Materials*. 2015;795:123-128.
  85. Kolade O, Osabuohien E, Aremu A, Olanipekun KA, Osabohien R, Tunji-Olayeni P. Co-creation of entrepreneurship education: challenges and opportunities for university, industry and public sector collaboration in Nigeria. In: *The Palgrave Handbook of African Entrepreneurship*; 2021. p. 239-265.
  86. Kolade O, Rae D, Obembe D, Woldesenbet K, editors. *The Palgrave Handbook of African Entrepreneurship*. Palgrave Macmillan; 2022.
  87. Lawal AA, Ajonbadi HA, Otokiti BO. Leadership and organisational performance in the Nigeria small and medium enterprises (SMEs). *American Journal of Business, Economics and Management*. 2014;2(5):121.
  88. Lawal AA, Ajonbadi HA, Otokiti BO. Strategic importance of the Nigerian small and medium enterprises (SMES): Myth or reality. *American Journal of Business, Economics and Management*. 2014;2(4):94-104.
  89. Lindström C, Maleki Vishkaei B, De Giovanni P. Subscription-based business models in the context of tech firms: Theory and applications. *International Journal of Industrial Engineering and Operations Management*. 2023;6(2).
  90. Moonen N, Bajens J, Ebrahim M, Helms R. Small business, big data: an assessment tool for (big) data analytics capabilities in SMEs. *Academy of Management Proceedings*. 2019;2019(1):16354.
  91. Muibi TG, Akinyemi AL. Emergency remote teaching during Covid-19 pandemic and undergraduates' learning effectiveness at the University of Ibadan, Nigeria. *African Journal of Educational Management*. 2022;23(2):95-110.
  92. Negash S. Business intelligence. *Communications of the Association for Information Systems*. 2004;13.
  93. Nwabekee US, Aniebonam EE, Elumilade OO, Ogunsola OY. Predictive model for enhancing long-term customer relationships and profitability in retail and service-based. 2021.
  94. Nwabekee US, Aniebonam EE, Elumilade OO, Ogunsola OY. Integrating digital marketing strategies with financial performance metrics to drive profitability across competitive market sectors. 2021.
  95. Nwaimo CS, Adewumi A, Ajiga D. Advanced data analytics and business intelligence: Building resilience in risk management. *International Journal of Scientific Research and Applications*. 2022;6(2):121.
  96. Nwaimo CS, Adewumi A, Ajiga D, Agho MO, Iwe KA. AI and data analytics for sustainability: A strategic framework for risk management in energy and business. *International Journal of Scientific Research and Applications*. 2023;8(2):158.
  97. Odunaiya OG, Soyombo OT, Ogunsola OY. Economic incentives for EV adoption: A comparative study between the United States and Nigeria. *Journal of Advanced Education and Sciences*. 2021;1(2):64-74.
  98. Odunaiya OG, Soyombo OT, Ogunsola OY. Energy storage solutions for solar power: Technologies and challenges. *International Journal of Multidisciplinary Research and Growth Evaluation*. 2021;2(4):882-890.
  99. Odunaiya OG, Soyombo OT, Ogunsola OY. Sustainable energy solutions through AI and software engineering: Optimizing resource management in renewable energy systems. *Journal of Advanced Education and Sciences*. 2022;2(1):26-37.
  100. Odunaiya OG, Soyombo OT, Ogunsola OY. Innovations in energy financing: Leveraging AI for sustainable infrastructure investment and development. *International Journal of Management and Organizational Research*. 2023;2(1):102-114.
  101. Ogundare AF, Akinyemi AL, Aremu A. Impact of gamification and game-based learning on senior secondary school students' achievement in English language. *Journal of Educational Review*. 2021;13(1):110-123.
  102. Okeleke PA, Babatunde SO, Ijomah TI. The Ethical Implications and Economic Impact of Marketing Medical Products: Balancing Profit and Patient Well-Being. 2022.
  103. Olaiya SM, Akinyemi AL, Aremu A. Effect of a board game: Snakes and ladders on students' achievement in civic education. *Journal of Nigeria Association for Educational Media and Technology*. 2017;21(2).
  104. Olanipekun KA. Assessment of Factors Influencing the

- Development and Sustainability of Small Scale Foundry Enterprises in Nigeria: A Case Study of Lagos State. *Asian Journal of Social Sciences and Management Studies*. 2020;7(4):288-294.
105. Olanipekun KA, Ayotola A. Introduction to marketing. GES 301, Centre for General Studies (CGS), University of Ibadan; 2019.
106. Olanipekun KA, Ilori MO, Ibitoye SA. Effect of Government Policies and Extent of Its Implementation on the Foundry Industry in Nigeria. 2020.
107. Olojede FO, Akinyemi A. Stakeholders' readiness For Adoption of Social Media Platforms For Teaching And Learning Activities In Senior Secondary Schools In Ibadan Metropolis, Oyo State, Nigeria. *International Journal of General Studies Education*. 2022;141.
108. Olszak C, Ziemia E. Critical success factors for implementing business intelligence systems in small and medium enterprises on the example of upper silesia, poland. *Interdisciplinary Journal of Information Knowledge and Management*. 2012;7:129-150. <https://doi.org/10.28945/1584>
109. Oludare JK, Adeyemi K, Otokiti B. Impact Of Knowledge Management Practices And Performance Of Selected Multinational Manufacturing Firms In South-Western Nigeria. The title should be concise and supplied on a separate sheet of the manuscript. 2022;2(1):48.
110. Oludare JK, Oladeji OS, Adeyemi K, Otokiti B. Thematic Analysis of Knowledge Management Practices and Performance of Multinational Manufacturing Firms in Nigeria. 2023.
111. Olufemi-Phillips AQ, Ofodile OC, Toromade AS, Eyo-Udo NL, Adewale TT. Optimizing FMCG supply chain management with IoT and cloud computing integration. *International Journal of Management & Entrepreneurship Research*. 2020;6(11).
112. Otokiti BO. A study of management practices and organisational performance of selected MNCs in emerging market - A Case of Nigeria. *International Journal of Business and Management Invention*. 2017;6(6):1-7.
113. Otokiti BO. Descriptive Analysis of Market Segmentation and Profit Optimization through Data Visualization. *International Journal of Entrepreneurship and Business*. 2023;5(2):7-20.
114. Otokiti BO. Mode of Entry of Multinational Corporation and their Performance in the Nigeria Market [Doctoral dissertation]. Covenant University; 2012.
115. Otokiti BO. Social media and business growth of women entrepreneurs in Ilorin metropolis. *International Journal of Entrepreneurship, Business and Management*. 2017;1(2):50-65.
116. Otokiti BO. Business regulation and control in Nigeria. *Book of Readings in Honour of Professor S. O. Otokiti*. 2018;1(2):201-215.
117. Otokiti BO. Descriptive analysis of market segmentation and profit optimization through data visualization [Master's thesis]. 2023.
118. Otokiti BO, Akorede AF. Advancing sustainability through change and innovation: A co-evolutionary perspective. *Innovation: Taking creativity to the market. Book of Readings in Honour of Professor S. O. Otokiti*. 2018;1(1):161-167.
119. Otokiti BO, Onalaja AE. The role of strategic brand positioning in driving business growth and competitive advantage. *Iconic Research and Engineering Journals*. 2021;4(9):151-168.
120. Otokiti BO, Onalaja AE. Women's leadership in marketing and media: Overcoming barriers and creating lasting industry impact. *International Journal of Social Science Exceptional Research*. 2022;1(1):173-185.
121. Otokiti BO, Igwe AN, Ewim CP, Ibeh AI, Sikhakhane-Nwokediegwu Z. A framework for developing resilient business models for Nigerian SMEs in response to economic disruptions. *International Journal of Multidisciplinary Research Growth Evaluation*. 2022;3(1):647-659.
122. Otokiti BO, Akinbola OA. Effects of Lease Options on the Organizational Growth of Small and Medium Enterprise (SME's) in Lagos State, Nigeria. *Asian Journal of Business and Management Sciences*. 2013;3(4).
123. Otokiti-Ilori BO. Business Regulation and Control in Nigeria. *Book of readings in honour of Professor S.O Otokiti*. 2018;1(1).
124. Otokiti-Ilori BO, Akorede AF. Advancing Sustainability through Change and Innovation: A co-evolutionary perspective. *Innovation: taking Creativity to the Market. Book of readings in honour of Professor S.O Otokiti*. 2018;1(1):161-167.
125. Tella A, Akinyemi AL. Entrepreneurship education and Self-sustenance among National Youth Service Corps members in Ibadan, Nigeria. *Proceedings E-BOOK*. 2022;202.
126. Thompson WJ, Van der Walt JS. Business intelligence in the cloud. *South African Journal of Information Management*. 2010;12(1):1-15.
127. Weng S, Yang M, Koo T, Hsiao P. Modeling the prediction of business intelligence system effectiveness. *Springerplus*. 2016;5(1). <https://doi.org/10.1186/s40064-016-2525-6>
128. Wirtz J, So KKF, Mody MA, Liu SQ, Chun HH. Platforms in the peer-to-peer sharing economy. *Journal of Service Management*. 2019;30(4):452-483.