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Article

# Business Intelligence for Entrepreneurial Growth: A Knowledge Management Approach at the Department of Small Business Development

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**Abstract:** This article explores the integration of Business Intelligence (BI) as a Knowledge Management (KM) tool within the Department of Small Business Development (DSBD) to address challenges facing South African entrepreneurs. These challenges include limited business training programs, inadequate monitoring and evaluation systems, insufficient supply-driven business initiatives, and predominantly urban-centric support for entrepreneurs. By adopting a knowledge-centric approach, this research investigates how BI can serve as a transformative tool to enhance data-driven decision-making, foster knowledge retention, and improve resource allocation to support the entrepreneurial ecosystem. **Methodology/Design/Approach:** The research adopts a qualitative approach, utilizing semi-structured interviews with twenty Business Development Officers and a review of relevant documents. The data were analysed thematically to identify how BI tools are currently used and to develop a model for improved support mechanisms. **Findings** This study highlights the role of BI in creating actionable insights, enhancing learning and innovation, and supporting effective knowledge-sharing practices. The findings aim to contribute to developing a robust KM framework that leverages BI to empower entrepreneurs, mitigate growth barriers, and foster a sustainable environment for small business success. **Conclusion:** The article concludes that integrating BI with KM offers DSBD a powerful framework for delivering responsive, data-informed support to entrepreneurs. This approach not only enhances the department's capacity to make informed decisions but also fosters sustainable growth within the entrepreneurial ecosystem. **Limitations:** Given its qualitative scope and focus on DSBD officers, the study may have limitations in terms of broader applicability. Future research should consider perspectives from a wider range of stakeholders to further validate and adapt the model.

**Keywords:** business intelligence; knowledge management; entrepreneurial growth; department of small business development; data-driven decision making; South Africa

## 1. Introduction

The landscape of entrepreneurship is continuously evolving, driven by advancements in technology and the increasing availability of data (Perera & Iqbal 2021). In South Africa, entrepreneurs face numerous challenges that hinder their growth and sustainability. These challenges include limited access to business training programs, inadequate monitoring and evaluation systems, and a predominance of urban-centric support structures (Rens, Iwu, Tengeh & Esambe 2021). To address these issues, the Department of Small Business Development (DSBD) has recognized the potential of integrating Business Intelligence (BI) with Knowledge Management (KM) practices to foster entrepreneurial growth.

Knowledge Management (KM) is the systematic process of creating, sharing, using, and managing the knowledge and information of an organization (Nonaka & Takeuchi 1995; Hu, Tian, Nagato, Nakao & Liu 2023). It plays a crucial role in ensuring that valuable knowledge is effectively captured and utilized to make informed decisions and drive innovation (Adesina & Dennis 2020). When coupled with Business Intelligence (BI) tools, which provide data analysis and reporting

capabilities, KM can significantly enhance the ability of organizations to support entrepreneurs by providing timely and relevant insights (McCommons 2020).

A recent study conducted by Tsiu, Ngobeni, Mathabela and Thango (2024) has demonstrated the transformative potential of integrating BI and KM in various sectors. For instance, BI tools can help identify market trends, customer preferences, and operational inefficiencies (Tsiu *et.al* 2024), while KM practices ensure that this knowledge is shared and applied across the organization (Hu *et.al* 2023). In the context of the DSBD, this integration aims to improve the support mechanisms for entrepreneurs by enabling data-driven decision-making, fostering knowledge retention, and enhancing resource allocation.

By leveraging BI and KM, the DSBD can create a more robust support system that addresses the specific needs of entrepreneurs. This integrated approach not only empowers entrepreneurs with actionable insights but also promotes a culture of continuous learning and innovation. Furthermore, it aligns with the broader goals of sustainable economic development by helping to mitigate growth barriers and supporting the creation of a conducive environment for small business success.

## 2. Theoretical Framework

This article has adopted Rostami's (2014) People-Centric Knowledge Management and Business Intelligence (PC-KMBI) framework, which emphasizes the critical role of human factors in the effective implementation of BI and KM systems. The PC-KMBI framework consists of several constructs, including leadership, culture, technology, and processes, which are crucial for harnessing the full potential of BI and KM tools.

**Leadership:** Leadership is a fundamental construct in the PC-KMBI framework, as it drives the strategic vision and commitment necessary for successful BI and KM integration. In the context of DSBD, leaders must champion the adoption of BI tools and KM practices, ensuring that they align with the department's mission to support entrepreneurial growth. This involves fostering a culture that values data-driven decision-making and continuous improvement (Rostami 2014).

**Culture:** The organizational culture must support knowledge sharing and innovation. A people-centric approach emphasizes creating an environment where employees are encouraged to share insights and collaborate. For the DSBD, this means promoting a culture where Business Development Officers and other staff feel empowered to use BI tools and contribute to KM processes (Rostami 2014).

**Technology:** Technology is a critical enabler of the PC-KMBI framework. The DSBD must invest in state-of-the-art BI tools and KM systems that facilitate data analysis, reporting, and knowledge sharing. These technologies should be user-friendly and accessible to all staff members, ensuring that they can effectively leverage the available data to support entrepreneurs (Rostami 2014).

**Processes:** Effective processes are essential for integrating BI and KM. The DSBD should establish clear procedures for data collection, analysis, and dissemination. This includes standardizing the use of BI tools across the department and ensuring that knowledge management practices are embedded in daily operations. By streamlining these processes, the DSBD can enhance its ability to provide timely and relevant support to entrepreneurs (Rostami 2014).

## 3. Problem Statement

Despite the increasing availability of data and advancements in technology, South African entrepreneurs continue to face significant challenges that hinder their growth and sustainability. These challenges include limited access to business training programs, inadequate monitoring and evaluation systems, and a predominantly urban-centric support infrastructure. The Department of Small Business Development (DSBD) recognizes the potential of integrating Business Intelligence (BI) with Knowledge Management (KM) practices to address these issues and foster entrepreneurial growth. However, there is a need for a comprehensive framework that emphasizes the critical role of human factors such as leadership, culture, technology, and processes in the effective implementation

of BI and KM systems. Without such a framework, the DSBD may struggle to leverage BI and KM tools fully, thereby limiting its ability to provide timely and relevant support to entrepreneurs. This study aims to explore the integration of BI and KM within the DSBD and develop a robust model that can enhance data-driven decision-making, foster knowledge retention, and improve resource allocation to support the entrepreneurial ecosystem.

#### 4. Purpose

The purpose of this article is to investigate the integration of Business Intelligence (BI) and Knowledge Management (KM) within the Department of Small Business Development (DSBD) in South Africa. By adopting Rostami's (2014) People-Centric Knowledge Management and Business Intelligence (PC-KMBI) framework, the study aims to identify and analyse the critical human factors, leadership, culture, technology, and processes that influence the effective implementation of BI and KM systems. The specific objectives are:

- To identify how BI as a KM tool can be used to overcome the challenges experienced by the DSBD in providing support to entrepreneurs.
- To explore how KM tools are used to identify business support programs for entrepreneur at the DSBD.

#### 5. Literature Review

This section discusses literature in line with the objectives.

##### *5.1. Using BI as a KM Tool to Overcome the Challenges in Supporting Entrepreneurs at the Department of Small Business Development*

In the South African public sectors, business development is championed by the Department of Small Business Development with several subsectors and affiliates ranging from both national and provincial government (Choughri 2018:87). The role of this agencies is to ensure that, all entrepreneurs in the country are fully provided with all the necessary support required to sustain business operations (Adewumi & Keyser 2020:554). While entrepreneurs continue to face and encounter numerous and diverse challenges depending on their business ventures, it is the responsibility of these entities to ensure that solutions are provided to mitigate the challenges (Matiza & Slabbert 2020:110). Because these South African Business Development Industries are tasked with huge responsibilities to ensure the success of entrepreneurs, they too face various challenges in this encounter. Findings from previous study conducted by Coughri (2018:89) on the challenges encountered by South African business development industries suggests that most of these institutions are extremely incapacitated and are unable to provide business support programmes. The Department of Small Business Development identified several challenges encountered by entrepreneurs in the success of their businesses, the impediments include but not limited to the following:

- Lack of business training programmes.
- Lack of monitoring and evaluation in entrepreneurial businesses.
- Lack of business supply-driven programmes.
- Business development industries being located in urbanised environments.

##### *5.1.1. Lack of Business Training Programs*

Entrepreneurial business training programs are unified structured programmes that are designed and implemented to equip entrepreneurs with the required skillsets and perspectives to identify, launch and sustain current and newly established business ventures around the globe (South African Institute for Entrepreneurs 2022). They are provided by business development industries either public or private to provide on-going and continuous support for entrepreneurs in order to

sustain their business operations (Meyer & Hamilton 2020:131). Previous studies conducted on entrepreneurial business training programmes, such those conducted by Echtner (1995:135), provides that, entrepreneurial business training programmes upholds behavioural change and perceptions of entrepreneurs to put their business ideas into practice and action. In this way, entrepreneurs are able to mitigate business challenges and competition that may arise in the market economy.

Literature published by the Global Entrepreneurship Monitor (2021) on the lack of business training programmes for entrepreneurs in South Africa confirms that, most entrepreneurs especially in rural areas and townships have been experiencing great impediments in acquiring business support programmes from business development industries. This is due to the fact that, most business development industries do not have sufficient branches established regional and locally to serve in the interest of entrepreneurs (Galvão, Marques & Ferreira 2020:598). The inability to receive business training programmes has devastating aspects on the success of entrepreneurs. For example, studies conducted by the National Youth Development Agency (2022) on entrepreneurial sustainability has portrayed that, about five hundred (500) start-up entrepreneurs nationwide have abandoned their businesses due to the inability to receive proper guidance, mentorship and business training programmes.

Most developed countries in the world have successfully transitioned their economies by virtue of sustaining entrepreneurial businesses. According to Khalid, Islam and Ahmed (2019), for developing countries to remain ebullient and competitive in the global economy, they must successfully do so by providing extensive business support programmes to entrepreneurs. In this way, entrepreneurs are encouraged to develop new innovative ideas, products and services that are intended to ensure the country's economy remains vibrant. It is in this regard that South Africa business development industries must be conscious about providing sufficient business support programmes to entrepreneurs in order to sustain entrepreneurial businesses in the country.

#### 5.1.2. Lack of Monitoring and Evaluation in Entrepreneurial Businesses

Monitoring and evaluation play an important role in the success of entrepreneurial businesses (Isabelle 2020:218). Thus, for businesses to succeed, they need to be monitored and evaluated on the basis of the progress they have made over a period of time. Monitoring is the systematic scientific process that involves the collection, analysis, reporting data on inputs and outputs of external and internal factors that influence tactical business decisions. It assists entrepreneurs to monitor the progress of sales, services and products as well as the revenue collection of profits and business expenses (Isabelle 2020:219). On the other hand, evaluation refers to the process of assessing the relevance, uniqueness, efficiency, impact and sustainability of business operations (Dvorsky, Belas, Gavurova & Brabenec 2021:1670).

Evaluation is key in determining and measuring the impact of previous business data predictions that have been used to make informed business decisions (Loughlin, Lewis, Lascelles & Nudurupati 2023:45). The Gauteng Growth and Development Agency (2021) accentuates that, while monitoring and evaluation plays a significant role in the general operations of entrepreneurial businesses, business development industries are required to integrate M & E initiatives as part of entrepreneurial business support programmes (Adel, Mahrous & Hammad 2020:739). This will assist entrepreneurs to be accountable for fluctuations in business operations, thus being able to make informed business decisions (Loughlin *et al.* 2023:48).

Empirical research on the impact of monitoring and evaluation on entrepreneurial business success postulates that, the inability to integrate M & E functions in business SOPs can lead to the lack of inaccurate business data predictions that may negatively impact the performance of entrepreneurial businesses (GGDA 2020). Furthermore, the annual report published by OECD (2023) alludes that in the absence of M & E, businesses will lack the necessary information and knowledge required to adequately assess business performance and efficiency, thus leading to misinterpretation of results which many hinder progresses.

The Department of Trade, Industry & Competition (2020) survey on entrepreneurial business sustainability in South Africa alludes that, most entrepreneurs in the country fail to progress in their businesses by virtue of the inability to adopt, adopt and implement M&E functionalities in their business. In this way, entrepreneurs lack the scientific tools to measure progress and accountability in their businesses. For instance, Khalid *et al.* (2023), second that, the adoption and implementation of M&E functionalities has been serving as a great impediment over the past few years until recently. In the Forth Industrial Revolution, entrepreneurs are required to apply innovative measures in sustaining business operations. This will be highly characterised by the application of track and field tools such as M&E systems and software that are designed to develop automations for business sustainability.

### 5.1.3. Lack of Business Supply-Driven Programmes

In South Africa and elsewhere around the globe, entrepreneurs and business owners of all sizes operate in a continuously increasing intensive environment influenced by political expediency (Kluge, Subramanian & Fiegl 2022:12). Thus, it is without doubt that entrepreneurs continue to battle against business giants and government state owned entities in the competition of procurement services and business supply programmes.

Procurement and business supply programmes are significant figures largely driven by policy initiatives that are mainly used as a discriminatory tool to marginalise entrepreneurs in business with state owned entities (Ellitan 2020:8). For example, a report published by the Sector Enterprise Finance Agency (2022) has alleged that, 26% of entrepreneurs registered on the central supplier database (CSD) of the National Treasury Department to provide services and products to government entities are hardly selected. This figure signifies major impediments in the provision of business-driven supply programmes to entrepreneurs by business development industries.

However, policy reform initiatives championed by the Department of Small Business (2021) denotes that, a mandate to develop a business-driven supply programmes for entrepreneurs are mandatory to ensure the growth and economic development of Small, Medium and Micro Enterprises (SMMEs). Growing empirical evidence on entrepreneurial business supply programmes in the post COVID-19 era suggest that, in South Africa entrepreneurs are central and conscious about the policy subordination agenda which seeks to promote individual capacity rather than businesses. This approach unified substantial impacts on derailing entrepreneurial businesses in the sense that, most entrepreneurs are discouraged from engaging in business to business with government and state-owned entities.

### 5.1.4. Business Development Industries Being Located in Urbanised Environments

Business development industries as champions of small and medium business enterprise development are tasked with the responsibilities to ensure that, business owners of all sizes are provided with the necessary support programs to successfully embark on their business journeys (Henderson, Dicken, Hess, Coe & Yeung 2002:436; Rahman & Kabir 2019:61). In South Africa, most business development industries are well established government and private entities which are “strategically” located in urbanised environments. The strategic location of these entities in urbanised environments have substantial devastating implications on rural and township entrepreneurs (Department of Small Business Development 2021).

Studies conducted by the Sector Enterprise Development Agency (2022) on rural enterprise development suggests that numerous entrepreneurs and business owners of all sizes in rural areas and townships have been experiencing challenges in acquiring business support programs from business development industries. A rural entrepreneurial survey conducted by the National Youth Development Agency (2021) further seconds that, the strategic location of business development industries in the cities have disadvantaged a huge number of entrepreneurs from acquiring the necessary skillset to advance their business operations.

Most entrepreneurs lack the necessary means to travel to the cities to attend business mentorship programmes, applications for funding programmes, investments, and expansion opportunity conferences. Thus, this places great impediments on the growth, development and productivity of business sustainability (Rahman & Kabir 2019:61). The concept of entrepreneurial ecosystem recognises the fact that entrepreneurial opportunities exist at the confluence of markets, people and technologies (Henderson *et al.* 2019:62). The concept of ecosystem also takes into consideration that the opportunities are not static and that, changing environmental conditions can sometimes create and destroy value chains. These problems are exacerbated in rural regions due to geographic distance, isolation and in the view of above the challenges and problems faced by the rural entrepreneurship in developing countries (Liu, Qian & Haynes 2021:10).

## 5.2. Using KM Tools to Identify Entrepreneurial Business Support Programmes

Knowledge management (KM) tools play a crucial role in identifying and enhancing business support programs for entrepreneurs (Adhikari & Shrestha 2023). These tools help in gathering, organizing, analyzing, and disseminating valuable information that can shape more effective support structures (Xanthopoulou, Kessopoulou & Tsiotras, 2023). By leveraging KM tools, organizations can better understand the needs of entrepreneurs, assess the impact of existing programs, and develop more targeted and efficient support solutions. This section delves into the application of KM tools in entrepreneurial support programs, highlighting key themes such as information gathering, data analysis, and knowledge sharing.

### 5.2.1. The Role of Knowledge Management in Entrepreneurial Support

Knowledge management encompasses a range of processes and tools designed to capture and share valuable knowledge within an organization. In the context of entrepreneurial support, KM helps to identify best practices, streamline program operations, and facilitate collaboration between stakeholders (Sytnik & Kravchenko 2021). Through effective KM practices, support organizations can make informed decisions, ensure continuity, and build on existing knowledge to improve their programs (Weed-Schertzer 2020). This section examines how KM principles such as knowledge acquisition, storage, and retrieval contribute to creating a robust support system for entrepreneurs.

#### Knowledge Acquisition: Gathering Relevant Information

The initial phase of knowledge management involves acquiring relevant information that can inform business support programs (Jacques, Ouahabi & Lequeu 2020). This includes gathering data on the specific needs, challenges, and growth patterns of entrepreneurs in various sectors. KM tools, such as surveys, focus groups, and interviews, help in collecting qualitative and quantitative data from entrepreneurs, business mentors, and program administrators (Barba-Aragón & Jiménez-Jiménez, 2024). By collecting this information, organizations gain insights into the diverse and evolving needs of entrepreneurs, enabling them to design support programs that are responsive to real-world challenges.

#### Knowledge Storage and Retrieval: Building a Repository of Entrepreneurial Resources

Once information is gathered, it must be systematically stored and organized for easy retrieval. KM tools like databases and content management systems (CMS) facilitate the creation of a central repository of resources that can be accessed by program administrators, mentors, and entrepreneurs (Jarrahi, Askay, Eshraghi & Smith 2023). Such repositories might contain case studies, funding opportunities, business templates, and industry-specific insights (Jarrahi *et.al* 2023). Effective storage and retrieval of this information ensure that entrepreneurs and support staff can access valuable knowledge when needed, reducing redundancy and enhancing program efficiency.

### 5.2.2. Knowledge Management Tools for Analyzing Entrepreneurial Needs

Analysing the data collected is essential to understanding the trends, challenges, and success factors associated with entrepreneurial support. KM tools that offer data analytics, such as business intelligence (BI) platforms, predictive analytics software, and customer relationship management (CRM) systems, can be leveraged to process large datasets and extract meaningful insights (Ghali, Farrag, Won & Jin 2024). This section explores the role of these tools in identifying gaps in support programs and in assessing the impact of current initiatives.

#### Business Intelligence and Analytics for Program Evaluation

Business intelligence tools allow support organizations to evaluate the effectiveness of their programs by tracking key performance indicators (KPIs) such as growth rates, funding utilization, and business longevity (Niu, Ying, Yang, Bao, & Sivaparthipan 2021). Through BI analytics, organizations can identify trends in entrepreneurial performance and adjust their programs accordingly. This data-driven approach helps support programs become more proactive, addressing potential challenges before they impact the entrepreneurs' progress (Niu *et.al* 2021).

#### Predictive Analytics for Identifying Emerging Entrepreneurial Trends

Predictive analytics tools enable organizations to anticipate future trends in entrepreneurship, such as changes in market demand, technology adoption, or industry-specific challenges (Zakhidov 2024). By analysing historical data, these tools can forecast the needs of entrepreneurs in different sectors, allowing support programs to be tailored to future demands. Predictive analytics also aid in identifying high-potential areas for investment and innovation, helping support organizations prioritize resources effectively (Zakhidov 2024).

#### 5.2.3. Knowledge Sharing and Collaboration Tools in Entrepreneurial Ecosystems

Collaboration and knowledge sharing are vital components of an effective support program. KM tools that facilitate communication and knowledge exchange such as knowledge-sharing platforms, social intranets, and collaborative project management tools help in building a supportive entrepreneurial ecosystem (Attour & Lazaric 2020). This section discusses how these tools foster collaboration among stakeholders, enhance program transparency, and encourage peer learning among entrepreneurs.

#### Knowledge-Sharing Platforms for Entrepreneurial Learning

Platforms designed for knowledge sharing, such as online forums, intranets, and collaborative portals, provide entrepreneurs with access to mentorship, training materials, and peer advice (Fernandes & Ferreira 2022). By connecting entrepreneurs with industry experts, investors, and fellow business owners, these platforms enable experiential learning, where entrepreneurs can share their experiences, discuss challenges, and seek guidance. Knowledge-sharing platforms also serve as a feedback mechanism, helping support organizations understand the effectiveness of their initiatives (Fernandes & Ferreira 2022).

#### Social Intranets and Digital Communities for Stakeholder Collaboration

Digital communities and social intranets encourage interaction among stakeholders, including program administrators, mentors, government representatives, and entrepreneurs (Schwade 2021). These KM tools allow for real-time discussions, document sharing, and joint problem-solving, which can lead to more effective program design and implementation (Taneja 2022). Through collaborative platforms, stakeholders can discuss policy changes, share funding opportunities, and co-create solutions that address the diverse needs of entrepreneurs in the support program (Wereda & Pokorski 2021).

#### 5.2.4. The Impact of Knowledge Management on Entrepreneurial Program Effectiveness

The implementation of knowledge management tools has a significant impact on the effectiveness and sustainability of entrepreneurial support programs (Bhatti, Kiyani, Dust & Zakariya 2021). This section discusses the specific outcomes associated with integrating KM tools, such as improved decision-making, increased program scalability, and enhanced adaptability to changing market dynamics. By incorporating KM into their operations, entrepreneurial support programs can better respond to feedback, evolve with market demands, and remain relevant to entrepreneurs' needs.

#### Improved Decision-Making through Real-Time Data

Knowledge management tools provide program administrators with real-time data, enabling timely and informed decision-making (Wang & Wu 2021). Access to current insights about program performance and entrepreneurial challenges allows for rapid adjustments, ensuring that support remains relevant and effective (Maaitah 2023). This agility is especially valuable in volatile business environments, where market conditions and entrepreneurial needs can shift rapidly.

#### Enhanced Scalability and Adaptability of Support Programs

By building a comprehensive knowledge base and fostering collaboration, KM tools help in scaling support programs across different regions and business sectors (Osman, Noah & Saad 2022). Knowledge management creates a foundation for replicating successful support models and for adapting programs to new markets and contexts (Osman *et.al* 2022). This scalability and adaptability are essential in creating an inclusive support ecosystem that addresses the needs of a wide range of entrepreneurs, from urban to rural areas.

## 6. Research Methodology

A qualitative research approach was adopted for this study, focusing on the role of business intelligence (BI) in fostering entrepreneurial growth through knowledge management at the Department of Small Business Development (DSBD). The study used semi-structured interviews as the primary data collection method to enable an in-depth exploration of participants' perspectives on the use of BI tools and KM practices in entrepreneurial support programs.

Purposive sampling was used to select participants with relevant experience and knowledge of the DSBD's BI initiatives and knowledge management strategies. Specifically, 20 Business Development Officers and BI specialists from various DSBD units were interviewed. Sampling continued until data saturation was reached, meaning that no new information or insights were emerging. This sampling approach was chosen to facilitate a comprehensive examination of participants' insights, challenges, and suggestions regarding BI and KM's role in supporting entrepreneurs. The case study design allowed for a detailed analysis of complex phenomena in a real-world context, focusing on the specific knowledge management tools and BI methods employed to aid entrepreneurial growth.

To maintain ethical integrity, informed consent was obtained from all participants. They were assured of confidentiality and encouraged to respond honestly. Ethical clearance was obtained from the University of South Africa (Unisa) Ethics Committee, and permission to conduct the study was also granted by the DSBD. During data collection, interviews were audio-recorded with participants' consent and later transcribed to ensure data accuracy. To protect participants' anonymity, unique codes (e.g., Participant 1, Participant 2) were assigned, ensuring confidentiality throughout the data analysis and reporting process.

Data were collected through interviews that explored themes aligned with the study's objectives, specifically focusing on the role of BI tools in identifying and analyzing entrepreneurial trends, evaluating support programs, and enhancing knowledge-sharing mechanisms within the DSBD. The data were then coded and categorized into themes that corresponded with these objectives.

Thematic analysis was employed to identify patterns and insights in the data, supported by content analysis to interpret the underlying meanings of participants’ responses in the context of BI and KM. This analytical approach allowed for a detailed understanding of the relevance and impact of BI tools and KM practices on entrepreneurial growth. By integrating these analytical techniques, the study produced findings that were both comprehensive and aligned with the research objectives, offering a clear view of how BI can enhance knowledge management for entrepreneurial development at the DSBD.

**Table 1.** Table of Anonymized Participants.

Code	Occupation	Education	Experience
Participant 1	Regional manager	Honours degree	Seven years
Participant 2	Regional manager	Honours degree	Six years
Participant 3	Regional manager	Honours degree	Seven years
Participant 4	Regional manager	Honours degree	Six years
Participant 5	Senior manager	Bachelor’s degree	Five years
Participant 6	Senior manager	Bachelor’s degree	Five years
Participant 7	Deputy director	Master’s degree	Eight years
Participant 8	Deputy director	Master’s degree	Seven years
Participant 9	Programme implementer	National diploma	Six years
Participant 10	Programme implementer	National diploma	Five years
Participant 11	Programme implementer	National diploma	Six years
Participant 12	Programme implementer	National diploma	Four years
Participant 13	Programme implementer	National diploma	Five years
Participant 14	Programme implementer	National diploma	Five years
Participant 15	Business administrator	National vocational certificate	Four years

## 7. Presentation of Results and Data Analysis

The main objectives of this paper were to identify how BI as a KM tool can be used to overcome the challenges experienced by the DSBD in providing support to entrepreneurs, and to explore how KM tools are used to identify business support programs for entrepreneur at the DSBD.

### 7.1. Identifying How BI as a KM Tool Can Be Used to Overcome the Challenges Experienced by the DSBD in Providing Support to Entrepreneurs

The first objective of the article was to identify how BI as a KM tool can be used to overcome the challenges experienced by the DSBD in providing support to entrepreneurs. Participants of the study were asked to elaborate on the primary challenges encountered by the DSBD in providing entrepreneurial business support programmes. The following responses were provided:

*“One of the primary challenges faced by the DSBD in providing entrepreneurial business support programmes is inadequate funding, which limits the department’s ability to implement comprehensive and impactful initiatives”.* [Participant 1]

*“There are various red tapes and administrative complexities within the DSBD, and this delay the rollout of support programmes and hinder their effectiveness”.* [Participant 14]

*“There many of them, but I can only attest to the capacity constraints within the DSBD, this includes limited human resources, expertise, and organisational capacity, as significant challenges that hinder the department’s ability to deliver support programmes efficiently”.* [Participant 12]

The statements provided by participants highlight several key challenges faced by the Department of Small Business Development (DSBD) in providing effective entrepreneurial business support programmes. For example, Participant 1 identifies inadequate funding as a primary challenge. This aligns with the literature, which suggests that limited financial resources can constrain the implementation of comprehensive and impactful support programmes (Audretsch, Belitski Caiazza & Lehmann 2020:376). Insufficient funding may lead to constraints in staffing, infrastructure, and program outreach, hindering the department’s ability to meet the diverse needs of entrepreneurs effectively. Participant 14 mentions administrative red tape and complexities within the DSBD. Research indicates that bureaucratic obstacles can delay the rollout of support programmes and reduce their effectiveness (Islam, Zahra, Rehman & Jamil 2024:75). Streamlining administrative processes and reducing bureaucratic barriers is essential for enhancing the efficiency of entrepreneurial support initiatives. Participant 12 highlights capacity constraints, including limited human resources, expertise, and organisational capacity. Scholarly literature supports this observation, emphasising the importance of having skilled personnel and adequate organisational capabilities to deliver support programmes efficiently (Audretsch *et al.* 2020:379). Capacity-building initiatives within the DSBD are crucial for addressing these constraints and enhancing service delivery.

*“I think are accessibility barriers, such as limited outreach efforts and insufficient presence in remote or underserved areas, make it difficult for the DSBD to reach and support all entrepreneurs effectively”.* [Participant 7]

*“Well, there is a need for improved coordination and collaboration between different departments, agencies, and stakeholders involved in entrepreneurial support initiatives to enhance efficiency and avoid duplication of efforts”.* [Participant 13]

*“There are raising concerns about the lack of robust monitoring and evaluation mechanisms within the DSBD to assess the impact and effectiveness of entrepreneurial support programmes and make data-driven decisions for improvement”.* [Participant 6]

*“Our entrepreneurs often face challenges in accessing timely and relevant information about available support programmes, funding opportunities, and business resources provided by the DSBD, this leads to a lack of awareness and underutilization of available services”.* [Participant 11]

Participant 7 mentions accessibility barriers, such as limited outreach efforts and presence in remote or underserved areas. Research suggests that geographical and logistical barriers can restrict access to support services for entrepreneurs in rural or marginalised communities (Jordão & Novas 2024:568). Improving accessibility through targeted outreach and mobile service delivery can help address this challenge. Participant 13 emphasises the need for improved coordination and collaboration between different departments, agencies, and stakeholders involved in entrepreneurial support initiatives. Collaboration enhances efficiency, minimises duplication of efforts, and maximises resources (Jordão & Novas 2024:568). Establishing inter-agency partnerships and coordinating efforts can optimize the delivery of support programmes and services. Participant 6 raises concerns about the lack of robust monitoring and evaluation mechanisms within the DSBD. Effective monitoring and evaluation are essential for assessing programme impact, identifying areas for improvement, and making data-driven decisions (Zia 2020:1826). Implementing rigorous evaluation processes can enhance accountability and transparency in the delivery of entrepreneurial support programmes. Participant 11 highlights challenges faced by entrepreneurs in accessing timely and relevant information about available support programmes and resources provided by the DSBD. Research suggests that lack of awareness can lead to underutilisation of services and missed opportunities for support (Zia 2020:1828). Enhancing communication and outreach strategies can improve awareness and increase utilisation of DSBD services.

#### 7.1.1. Tailoring Support Programmes to Diverse Entrepreneurial Needs

Participants of the study were asked to elaborate on the specific barriers and obstacles that the DSBD encounters in tailoring support programmes to meet the diverse needs and challenges of entrepreneurs. The following responses were provided:

*“One of the major barriers is the lack of understanding of the diverse needs of entrepreneurs. Without a comprehensive understanding of the different challenges faced by entrepreneurs from various backgrounds, it’s challenging to tailor support programs effectively”.* [Participant 9]

*“Limited funding poses a significant obstacle. Without adequate financial resources, the DSBD struggles to develop and implement tailored support programmes that address the specific needs of different entrepreneurs”.* [Participant 12]

The statements provided by participants highlight several barriers faced by the Department of Small Business Development (DSBD) in effectively supporting entrepreneurs. For example, Participant 9 emphasizes the importance of understanding the diverse needs of entrepreneurs to tailor support programmes effectively. This resonates with research indicating that entrepreneurs come from diverse backgrounds with varying needs, challenges, and aspirations (Etim & Daramola 2020:134). Without a comprehensive understanding of these differences, support programmes may not address the specific requirements of various entrepreneur groups, leading to inefficiencies and ineffectiveness. Participant 12 highlights the significant obstacle of limited funding, which obstructs the DSBD’s ability to develop and implement tailored support programmes. This aligns with literature emphasising the importance of adequate financial resources for supporting entrepreneurship (Li, Ahmed, Qalati, Khan & Naz 2020:1822). Insufficient funding can restrict the scope and reach of support initiatives, delaying their impact on fostering entrepreneurship and economic growth. Participant 14 highlights the challenge of reaching entrepreneurs in remote or underserved areas due to geographical barriers and infrastructure limitations. A research study conducted by Botha, Smulders, Combrink and Meiring (2021), suggests that geographical disparities can intensify inequalities in access to entrepreneurial support services. Overcoming these challenges requires innovative approaches to deliver support programmes effectively to entrepreneurs in remote regions.

*“Well, I think geographical location and disparities make it difficult to reach entrepreneurs in remote or underserved areas. The DSBD encounters challenges in providing equitable access to support programmes due to geographical barriers and infrastructure limitations”.* [Participant 14]

*"As a BDO, I have realised that, regulatory complexity is a significant obstacle. Navigating complex regulatory frameworks and compliance requirements adds layers of bureaucracy and hinders the DSBD's ability to customise support programs efficiently". [Participant 5]*

Furthermore, Participant 5 highlights regulatory complexity as a significant obstacle, adding layers of bureaucracy that hinder the DSBD's ability to customise support programs efficiently. This is consistent with studies emphasising the regulatory burden as a barrier to entrepreneurship (Rangwetsi 2021). Simplifying regulatory frameworks and providing guidance on compliance can streamline processes for entrepreneurs and enhance the effectiveness of support programmes. Participant 1 underlines the challenge of communication and engagement due to cultural and linguistic diversity. A research study conducted by Rangwetsi (2021) and van der Walddt (2021:20) indicates that cultural differences and language barriers can impede effective communication and collaboration in multicultural contexts. Addressing these challenges requires culturally sensitive communication strategies and language support to ensure inclusivity and accessibility of support programmes.

*"I think cultural and linguistic diversity presents challenges in communication and engagement. The DSBD needs to overcome language barriers and cultural differences to effectively understand and address the diverse needs of entrepreneurs". [Participant 1]*

*"Limited capacity within the DSBD is a barrier. With a shortage of human resources and expertise, the department struggles to develop and implement tailored support programs that cater to the specific needs of entrepreneurs". [Participant 10]*

*"I think information irregularities is a significant obstacle. Many entrepreneurs are unaware of the support programmes offered by the DSBD, leading to underutilisation of available resources and services". [Participant 3]*

Participant 10 place great emphasis on the barrier of limited capacity within the DSBD, including a shortage of human resources and expertise. This aligns with literature highlighting the importance of organisational capacity for delivering effective support services to entrepreneurs (van der Walddt 2021:21). Strengthening organisational capacity through recruitment, training, and partnerships can enhance the DSBD's ability to meet the diverse needs of entrepreneurs.

Moreover, Participant 3 points out information irregularities as a significant obstacle, with many entrepreneurs unaware of the support programmes offered by the DSBD. This is consistent with research highlighting the importance of information dissemination and awareness campaigns for increasing utilisation of support services (Kunthi & Sensuse 2019). Improving access to information and promoting awareness of available resources can bridge the gap between entrepreneurs and support programmes. Lastly, Participant highlights the challenge of sectoral variation in tailoring support programmes effectively. Research suggests that different industries have unique requirements and challenges, requiring customised interventions to support entrepreneurship (Sishuba 2020). Adopting a sector specific approach and engaging industry stakeholders can enhance the relevance and impact of support initiatives across sectors.

## 7.2. Exploring How KM Tools Are Used to Identify Business Support Programs for Entrepreneur at the DSBD

The second objective of this article was to explore how KM tools are used to identify business support programs for entrepreneur at the DSBD. In view of this regard, participants of the study were asked; What are the key success factors in the implementation and adoption of knowledge management systems within entrepreneurial businesses? The following responses were provided:

*"Most of our entrepreneurs who used knowledge management systems in their businesses had positive results to report on their business milestones, most have mentioned that KM is often overlooked but necessary for businesses to grow". [Participant 3]*

*"I am not sure because the people responsible for facilitating knowledge management initiatives might be our external affiliates, this might be your DTI, SEDA or SEFA". [Participant 9]*

*"I have heard about knowledge management, but I am not sure how it works". [Participant 5]*

*"Because knowledge management is more focused on generating knowledge, storing, disseminating and applying knowledge, it can assist entrepreneurs to use valuable knowledge for making informed decisions for their business growth". [Participant 11]*

*"Entrepreneurs who took part in the last training session on knowledge management have somehow managed to improve on their sales, services and products they offer to the end user. I can confirm that knowledge management has positive impact on entrepreneurial businesses". [Participant 14]*

The analysis of responses provided by Participants indicated that, while some participants recognise the value of KM and its positive impact on entrepreneurial businesses, some remain uncertain. However, the overall analysis suggests that there may be a need for further education and training to enhance awareness and understanding of KM principles and practices among stakeholders within the organisation. For instance, Participant 3 emphasises the positive impact of knowledge management (KM) systems on entrepreneurial businesses, noting that those who implemented such systems reported significant milestones. This aligns with the literature, as research has shown that effective knowledge management can enhance organisational performance and competitiveness (Alavi & Leidner 2001; Adhikari & Shrestha 2023:1142). Additionally, Participant 3 highlights that while KM is often overlooked, it is essential for business growth. This sentiment is resonated in the scholarly literature published by Nonaka and Takeuchi (2021), which emphasises the importance of KM in facilitating innovation, decision-making, and adaptation to changing environments. Participant 14 corroborates the positive impact of KM on entrepreneurial businesses, noting that entrepreneurs who participated in KM training sessions experienced improvements in sales, services, and products. This supports the notion that KM can lead to tangible business outcomes by enabling organisations to leverage their knowledge assets effectively (Ruggles 1998:85; Shehzad, Zhang, Dost, Ahmad & Alam 2024:148).

Furthermore, Participant 11 provides a concise definition of knowledge management, stating that it involves generating, storing, disseminating, and applying knowledge to make informed decisions for business growth. This aligns with established definitions of KM, which emphasise the systematic management of knowledge assets to create value and achieve organisational objectives (Sabherwal *et al.* 2023:4). However, Participant 9 and Participant 5 express uncertainty about KM, suggesting a lack of awareness or understanding among some individuals within the organisation. This highlights the importance of education and awareness-building initiatives to promote the adoption and implementation of KM practices (Adhikari & Shrestha 2023:1143).

#### 7.2.1. Ensuring Accuracy, Reliability, and Currency of Information Provision for Entrepreneurial Support Programmes Through Knowledge Management Systems

The theme of ensuring accuracy, reliability, and currency of information provision for entrepreneurial support programmes through knowledge management systems emanates from the critical need to enhance the effectiveness and efficiency of support services for entrepreneurs. As such, the participants of the study were asked to elaborate on how knowledge management systems ensures that, the information provided to entrepreneurs about the support programmes they receive from the DSBD is accurate, reliable, and up-to-date. The following responses were provided:

*"I can concur that knowledge management systems uses complex processes such as cross-referencing information provided to entrepreneurs with peer-reviewed authoritative sources and conducting thorough fact-checking before that information is shared with entrepreneurs". [Participant 2]*

*"It's really hard to tell, but I can attest that KMS provides us with the ability to implement control measures to help identify and correct any errors or any discrepancies in the information provided to entrepreneurs". [Participant 12]*

The analysis of responses from participant perspectives underscores the critical role of knowledge management systems (KMS) in ensuring the accuracy, reliability, and currency of information provision for entrepreneurial support programmes. For example, Participant 2

highlights the rigorous processes involved in knowledge management systems (KMS), emphasising the importance of cross-referencing information with authoritative sources and conducting thorough fact-checking before dissemination. This perspective aligns with scholarly literature on knowledge management, which emphasises the significance of ensuring the accuracy and reliability of information through rigorous validation processes (Zaby & Wilde 2018:289). By corroborating information from multiple sources and verifying its authenticity, KMS can mitigate the risk of inaccuracies and misinformation, thereby enhancing the reliability of information provision for entrepreneurial support programmes. Participant 12 underlines the role of KMS in implementing control measures to identify and correct errors or discrepancies in the information provided to entrepreneurs. This viewpoint resonates with the literature on knowledge management quality assurance processes, which emphasises the importance of establishing control mechanisms to ensure the accuracy and integrity of knowledge (Shah, Hussain & Irshad 2024). By implementing control measures such as data validation checks and error correction protocols, KMS can enhance the reliability and trustworthiness of the information provided to entrepreneurs, thereby fostering informed decision-making and effective business strategies.

*"I am not sure about that, but we normally outsource knowledge management specialist to mentor our entrepreneurs, in doing so, they make sure that the support provide to entrepreneurs includes training them how to evaluate the credibility of information before they can even consider its use and applications in their businesses". [Participant 7]*

*"As a programme implementor working hand in hand with entrepreneurs and our knowledge management external providers as trainers, I am aware that knowledge management systems incorporate user engagement mechanisms and feedback to gather input from entrepreneurs about their experiences with DSBD support programmes. This feedback helps to identify any issues or gaps in the information provided and allows for adjustments to be made accordingly". [Participant 13]*

*"I think data analytics tools and techniques are leveraged by knowledge management systems to identify patterns and trends in the information, enabling proactive updates and adjustments as needed". [Participant 1]*

Furthermore, Participant 7 acknowledges the role of knowledge management specialists in mentoring entrepreneurs on evaluating the credibility of information. This perspective underscores the importance of building entrepreneurs' capacity to critically assess and validate information sources, a crucial skill in today's information-rich environment (Dalkir 2011 Shehzad *et al.* 2024:149). By equipping entrepreneurs with the knowledge and skills to evaluate the reliability and validity of information, KMS can empower them to make informed decisions and navigate the complexities of the business landscape more effectively. Moreover, Participant 13 highlights the importance of user engagement mechanisms and feedback loops in knowledge management systems. This perspective is supported by literature on knowledge management practices, which emphasizes the value of soliciting feedback from users to identify areas for improvement and enhance the relevance of information provision (Alavi & Leidner 2001). By incorporating user feedback into the iterative process of information dissemination and refinement, KMS can adapt to the evolving needs and preferences of entrepreneurs, thereby enhancing the effectiveness of entrepreneurial support programmes. Participant 1 suggests that data analytics tools and techniques are leveraged by KMS to identify patterns and trends in information, enabling proactive updates and adjustments. This perspective aligns with the literature on knowledge discovery and data mining, which highlights the role of data analytics in uncovering actionable insights from large datasets (Shehzad *et al.* 2024:149). By harnessing data analytics capabilities, KMS can identify emerging trends, anticipate information needs, and optimise information provision for entrepreneurial support programmes, thereby enhancing their relevance and impact.

### 7.2.2. The Long-Term Impacts of Knowledge Management Systems on Business Sustainability

The theme of exploring the long-term impacts of knowledge management systems (KMS) on business sustainability arises from the need for organisations to adapt and thrive in an increasingly dynamic and competitive landscape. In view of this regard, Participants of the study were asked: What are the potential long-term impacts of using knowledge management systems to identify and access support programmes on the success and sustainability of the businesses of entrepreneurs? The following responses were provided:

*“Well, I can attest that when entrepreneurs use knowledge management systems in their businesses, it can lead to enhanced efficiency and effectiveness in accessing the support programs and ultimately resulting in improved business performance and long-term sustainability”. [Participant 1]*

*“By leveraging knowledge management systems, entrepreneurs can gain valuable insights into market trends, regulatory changes, and emerging opportunities, which can help them make strategic decisions that drive business growth and sustainability over time”. [Participant 9]*

*“Accessing support programs through knowledge management systems can enable entrepreneurs to stay competitive and adaptable in the face of the evolving market conditions, which can lead to long-term viability for their businesses”. [Participant 12]*

The analysis of responses provided Participants highlight several key findings regarding the impact of knowledge management systems (KMS) on business sustainability. Participant 1 emphasises that the use of KMS in businesses leads to enhanced efficiency and effectiveness in accessing support programs, ultimately resulting in improved business performance and long-term sustainability. This perspective is supported by scholarly literature which suggests that effective knowledge management can improve organisational performance by facilitating access to relevant information and resources (Lopes, Ferreira & Farinha 2021:157). On the other hand, Participant 9 underlines the role of KMS in providing entrepreneurs with valuable insights into market trends, regulatory changes, and emerging opportunities, enabling them to make strategic decisions that drive business growth and sustainability over time. This aligns with research indicating that knowledge management can contribute to organisational agility and responsiveness to external changes (Lopes *et al.* 2021:158). Furthermore, Participant 12 highlights the importance of accessing support programmes through KMS in enabling entrepreneurs to stay competitive and adaptable in evolving market conditions, which can lead to long-term viability for their businesses. This perspective resonates with studies suggesting that effective knowledge sharing, and collaboration can enhance organisational resilience and competitiveness (Nonaka & Takeuchi 2021).

*“Well I think the use of knowledge management systems can allows entrepreneurs to build a repository of best practices and lessons learned in order to foster a culture of continuous improvement that can instigate long-term success and sustainability in their businesses”. [Participant 13]*

*“I am not certain about that but am sure programme implementers might know something about that”. [Participant 15]*

*“I perceive that knowledge management systems have the capability and capacity to facilitate effective collaboration and knowledge sharing among entrepreneurs, by doing so this can enable them to influence cooperative expertise and resources to address challenges and take opportunities, which can have significant positive impacts on business success and sustainability over time”. [Participant 10]*

*“I believe that the use knowledge management systems by entrepreneurs for their businesses, helps them to make informed decisions and optimize resource leading to increased operational efficiency, cost savings, and improved financial performance that contribute to long-term business sustainability”. [Participant 11]*

Participant 13 suggests that KMS allows entrepreneurs to build a repository of best practices and lessons learned, fostering a culture of continuous improvement that can lead to long-term success and sustainability. This is consistent with research emphasising the role of knowledge management in promoting organisational learning and innovation (Castellani, Lavoratori, Perri & Scalera 2022:103). Moreover, Participant 10 highlights the capacity of KMS to facilitate effective collaboration

and knowledge sharing among entrepreneurs, enabling them to leverage collective expertise and resources to address challenges and opportunities. This perspective aligns with studies emphasizing the role of social capital and collaboration in driving business success (Yamin 2020:447). Participant 11 suggests that the use of KMS by entrepreneurs helps them make informed decisions and optimise resources, leading to increased operational efficiency, cost savings, and improved financial performance that contribute to long-term business sustainability. This is supported by research indicating that knowledge management can lead to tangible business outcomes such as cost reductions and revenue growth (Iftikhar *et al.* 2020:1347).

## 8. Conclusion and Recommendations

The study found that integrating Business Intelligence (BI) tools within the knowledge management practices of the Department of Small Business Development (DSBD) offers significant benefits, particularly in enhancing the retention of critical knowledge. This integration enables more informed and timely decision-making processes, which are crucial for addressing challenges that hinder the growth and sustainability of entrepreneurs. Through the application of BI, DSBD has the potential to streamline data access, foster a culture of knowledge-driven decision-making, and provide systematic support tailored to entrepreneurial needs. Improved knowledge retention and access to actionable insights create an environment where entrepreneurs are better equipped to navigate business complexities and improve their chances of success.

Furthermore, the study also revealed the existing gaps in DSBD's current entrepreneurial support framework, which include the lack of effective monitoring and evaluation mechanisms, insufficient training programs, and limited accessibility of support services that are predominantly urban-centered. These shortcomings present barriers to the successful deployment of BI and knowledge management practices, and they limit the reach and inclusivity of DSBD's support programs. While BI has shown promise in facilitating knowledge retention and enhancing support for entrepreneurs, it may not entirely address the nuanced needs of diverse entrepreneurial segments. Additional efforts to customize BI solutions may be necessary to meet the unique challenges faced by various entrepreneurs across sectors and regions.

To address these issues, it is recommended that DSBD implement a comprehensive BI framework that integrates data collection, analysis, and reporting processes specifically designed to monitor and evaluate the progress of its entrepreneurial support programs. By adopting a structured BI framework with tailored performance metrics for different stages of business development, DSBD could track the effectiveness of its interventions and make data-driven adjustments where necessary. Expanding training initiatives is also vital. DSBD should focus on developing targeted training programs that help entrepreneurs understand and utilize data-driven decision-making and knowledge-sharing techniques. This could involve hands-on workshops that equip entrepreneurs with the skills needed to interpret market insights and apply them to their businesses, while promoting continuous learning as a key factor in business sustainability.

More so, the implementation of a robust monitoring and evaluation system within DSBD's knowledge management framework would be instrumental in addressing the identified gaps. Regular assessments of support programs can provide valuable insights into their impact, allowing DSBD to adapt and refine its initiatives to better serve entrepreneurs. To overcome the issue of accessibility, DSBD should expand its outreach efforts to rural and peri-urban areas, ensuring that knowledge management and BI-driven resources are not limited to urban centers. A more geographically inclusive approach would foster equitable access to entrepreneurial support services, promoting balanced economic growth across diverse regions.

Finally, cross-sector collaboration would greatly enhance DSBD's knowledge management and BI initiatives. Partnerships with academic institutions, private sector entities, and other government departments could facilitate the sharing of resources, research, and best practices, ensuring that DSBD's support strategies are continuously aligned with industry trends. By leveraging shared knowledge and expertise, DSBD can build a more resilient and adaptable support framework that

meets the evolving needs of South Africa's entrepreneurial community. Together, these recommendations offer a path forward for DSBD to enhance its BI and knowledge management practices, ultimately creating a more robust and supportive ecosystem for entrepreneurs.

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