

## International Journal of Research Publication and Reviews

Journal homepage: <a href="https://www.ijrpr.com">www.ijrpr.com</a> ISSN 2582-7421

# **Business Intelligence Tools For Small Business Growth.**

## Narmada Rani Sahoo.

ABSTRACT.

Business Intelligence (BI) tools have become pivotal for small businesses aiming to foster growth and stay competitive in today's data-driven market. These tools empower small enterprises to collect, analyse, and interpret vast amounts of data, leading to more informed decision-making and strategic planning. This abstract delves into the role of BI tools in small business growth, highlighting their capacity to enhance operational efficiency, customer insights, and market responsiveness. By leveraging BI tools, small businesses can identify trends, forecast market changes, and optimize their resources. The study emphasizes how BI tools facilitate data-driven strategies, resulting in improved performance metrics and growth trajectories. Furthermore, the abstract explores various BI tools suited for small businesses, their implementation challenges, and the best practices for maximizing their benefits. Ultimately, this research underscores the transformative impact of BI tools in driving small business growth, providing a framework for entrepreneurs and managers to harness these tools effectively for sustained competitive advantage.

#### Introduction.

In today's fast-moving and competitive business world, small businesses often face many hurdles as they strive to grow and stay sustainable. One key to their success is the ability to make informed and timely decisions. This is where Business Intelligence (BI) tools come in handy. These tools analyse data and provide actionable information, helping business owners and managers make well-informed decisions based on real-time insights. For small businesses, BI tools can be a real game-changer, offering a competitive edge through better decision-making, enhanced operational efficiency, and a deeper understanding of market trends and customer behaviour.

The role of data in modern business is crucial. Every interaction, transaction, and customer engagement generates valuable data that, when analysed properly, can reveal patterns, trends, and insights essential for strategic planning. Small businesses, in particular, can use BI tools to turn raw data into meaningful information, helping them understand their strengths and weaknesses, identify opportunities, and mitigate risks. This data-driven approach is vital for small businesses to compete with larger companies that often have more resources at their disposal.

BI tools provide several benefits for small business growth. They can streamline operations by identifying inefficiencies and areas where costs can be reduced. For example, by analysing sales data, a small retail business can determine which products are doing well and which are not, allowing for better inventory management and marketing strategies. Additionally, BI tools can enhance customer relationships by offering insights into customer preferences and behaviours, enabling businesses to tailor their products and services to meet the needs and expectations of their target audience.

Moreover, BI tools assist in strategic planning and forecasting. By analysing historical data and current market trends, small businesses can make more accurate predictions about future performance and market conditions. This foresight can help set realistic goals, allocate resources more effectively, and stay ahead of the competition. Furthermore, BI tools can aid in compliance and risk management by providing comprehensive reports and dashboards that help monitor regulatory requirements and identify potential risks.

However, implementing BI tools is not without challenges. Small businesses may encounter obstacles such as limited financial resources, lack of technical expertise, and resistance to change. Choosing the right BI tool that fits the specific needs and capabilities of the business is crucial. It's also important for small businesses to invest in training and support to ensure that their staff can effectively use these tools to reap maximum benefits.

## Literature Review.

The information revolution is a major force reshaping industries and the rules of competition. Using information wisely can give a company a significant edge over its competitors. This is especially true for small and medium-sized enterprises (SMEs) that adopt Business Intelligence (BI) systems to build and maintain a competitive advantage.

With technological advancements, businesses can now store vast amounts of data. This allows them to gather information from both customers and competitors, helping them to differentiate themselves. Data is a valuable asset, and companies that can effectively utilize it can create a competitive edge. Information systems, including BI, help companies execute their strategies more effectively, making them stand out in their industries.

In today's business world, managing knowledge through systems that collect and process information is crucial for developing a competitive advantage. Information technology (IT) is transforming how businesses operate. It affects how companies produce their products and reshapes the products themselves, which include physical goods, services, and information that provide value to customers. IT has long helped businesses review past information and make informed decisions for the present and future. BI systems enhance this by delivering real-time information in a user-friendly way, providing a single access point to crucial data with dynamic classification.

IT is essential for creating a competitive advantage, whether through cost leadership or differentiation. It influences activities that add value to the firm and helps businesses exploit changes in the competitive environment. BI can distinguish an average-performing company from a high-performing one. By aligning strategic goals with business initiatives, companies can use BI to gain a competitive edge. This advantage is vital as it means providing something valuable (a product, service, or skill) that competitors do not offer. However, competitive advantages are often temporary because competitors always try to replicate them. Therefore, businesses must continuously develop new advantages to stay ahead.

BI helps companies perceive and respond to market changes, competitors, and regulatory issues. Having better information makes it easier to optimize human and material resources. The quality of BI depends on a company's ability to manage information. Implementing BI systems can help businesses gain and sustain a competitive advantage. Data is a valuable, intangible asset, and information is often considered the second most important resource after human resources. BI provides the right information to the right user at the right time, enabling quick and effective decision-making.

Here's how businesses can leverage BI to gain a competitive edge:

- 1. Informed Decision-Making: BI systems analyse data and present actionable information, helping managers make informed decisions based on real-time insights.
- 2. Operational Efficiency: By identifying inefficiencies and areas for cost reduction, BI tools streamline operations and enhance productivity.
- 3.Customer Insights: BI provides insights into customer preferences and behaviours, allowing businesses to tailor their products and services to meet customer needs better.
- 4. Strategic Planning: By analysing historical data and market trends, businesses can make accurate predictions about future performance and market conditions, aiding in strategic planning and forecasting.
- 5.Risk Management: Comprehensive reports and dashboards help monitor regulatory requirements and identify potential risks, aiding in compliance and risk management.

#### 1 Business Intelligence and the Value Chain

Competitive advantage can emerge within a company's value chain. A company's cost position reflects the total cost of performing value activities compared to competitors. Similarly, a firm's ability to differentiate is based on how well each value activity meets customer needs. It's not just the products and services that matter; other activities, such as after-sales services or logistics, also play a role. Each value activity involves physical tasks and information processing. Physical inputs are the manual tasks, while information processing involves recording, managing, and channelling data necessary for each activity. Every value activity creates and uses information.

Information technology is now integral to the value chain. By using Business Intelligence (BI) systems, businesses can optimize and control operations, creating closer links between different activities. This allows companies to coordinate their actions more effectively with their buyers and suppliers.

The value chain helps an organization determine the "value" of its business activities for customers. This model highlights where business strategies can be best implemented and where BI systems can have a strategic impact. By adding value and creating a competitive advantage, BI can enhance every activity in the value chain. To leverage BI systems for competitive advantage, companies need to identify through their value chain where investments in information systems will make them stand out by providing valuable knowledge.

## 2 Business Intelligence and Cost and Differentiation Business Strategies

Information technology can change business costs in any value chain activity. In the past, technology's impact on cost reduction was limited to repetitive information processing activities. Today, these constraints no longer exist, and IT can significantly reduce the costs of various activities, affecting the firm's overall cost position. Businesses can use BI systems to radically reduce the costs of their activities.

Regarding differentiation, IT allows for the personalization of products. BI systems can collect detailed customer data, such as demographics, preferences, and purchasing habits. Companies can use this data to create unique products that are hard for competitors to copy. This strategic use of information can maximize profits. Customer intelligence, or customer analysis, is essential for maintaining a competitive advantage and ensuring a company's survival. It helps marketing teams design and implement targeted offers and programs using the right channels at the right times, optimizing customer interaction and satisfaction.

## 3. Materials and Methods

Bibliometric analysis is a valuable tool for researchers to gather information about the current state of research in specific areas. It involves recording and processing data related to scientific publications and extracting relevant bibliometric indicators. These indicators help determine the characteristics and volume of scientific production.

In recent years, there has been a significant increase in studies using bibliometric analysis. These indicators play a crucial role in forming an objective picture of research systems. They are used to evaluate research organizations, groups, and individual researchers. They also identify active research fields, emerging research areas, and scientific networks working towards common goals. By analysing data from scientific publications, researchers can identify trends and characteristics of research production at various levels.

Bibliometric indicators express the number of publications with numerical data. The simplest indicator is the number of publications, reflecting the scientific output per scientist, organization, or country. Additionally, citation analysis is a common bibliometric indicator used to assess the impact and originality of scientific work.

Before diving into the thematic evolution of research on Digital Transformation (DT) in business and management, it's crucial to distinguish DT from related concepts that are often used interchangeably. These terms include digitization, digitalization, and digital transformation itself.

## Digitization

According to the Gartner IT Glossary, digitization is the process of converting information from an analogy to a digital format. This involves the automation of processes through information technologies, as explained by Hess et al. (2016) and Horváth and Szabó (2019).

## Digitalization

The early 2000s saw significant advancements in technology, including mobile phones, data processors, distributed computing, storage, and digital cellular networks (Evans and Price, 2020; Heavin and Power, 2018). These advancements moved beyond mere digitization into the realm of digitalization. Digitalization involves using digital technologies and data (both digitized and natively digital) to generate revenue, enhance business operations, and transform business processes. This concept encompasses new methods of workplace communication and collaboration (Schwarzmueller et al., 2018).

#### Digital Transformation

Digital transformation goes a step further. It integrates digital technology into every aspect of an organization, leading to fundamental changes in how the organization operates and delivers value to its customers (McGrath and Maiye, 2010; Vial, 2019). Researchers like Bouncken, Kraus, and Roig-Tierno (2021) and Vial (2019) argue that DT fundamentally alters business operations, products, and processes, sometimes resulting in entirely new business models. Organizations, regardless of size or type, need to be prepared to adapt or even overhaul their current business processes (Horváth & Szabó, 2019), which can be challenging (Benjamin & Potts, 2018).

Kane et al. (2015) emphasize that this transformation must happen swiftly, requiring changes in leadership, culture, mindsets, attitudes towards risk, new technologies, and a willingness to embrace ambiguity and constant change. Successful DT can lead to increased sales and productivity, innovative value creation, and novel ways of interacting with customers (Matt et al., 2015). It also brings technologies like machine learning and analytics, offering endless opportunities for organizational solutions and enhanced internal efficiency (Heavin and Power, 2018).

However, while DT often carries positive connotations and is promoted by consulting giants like McKinsey and Boston Consulting, it's important to address potential negative effects. Responsible approaches to managing DT (O'Halloran & Griffin, 2019) and considerations of societal and ethical issues (Royakkers et al., 2018) are increasingly significant.

## **Research Objective**

- 1. 1.Make Smarter Decisions: Use BI tools to get real-time insights and data that help make better decisions at every level of the business.
- Understand and Engage Customers Better: Objective: Leverage BI tools to analyse customer data and behaviours, allowing for more personalized marketing and improved customer service.
- 3. Streamline Operations and Cut Costs: Use BI tools to spot inefficiencies and improve how resources are allocated, streamline production processes, and manage the supply chain.

## **Data Sources and Collection.**

The Scopus database, created by Elsevier in 2004, was chosen as the main data source for this research. Scopus is one of the largest "peer-reviewed" databases, covering over 24,000 active academic journal titles across various thematic areas of high research interest.

Data for this study were retrieved in September 2022 using specific search terms: [("business intelligence" OR "business intelligence solutions" OR "business analytics" OR "decision support systems" OR "strategic monitoring") AND ("small enterprises" OR "medium enterprises" OR "small and medium enterprises") AND ("competitive advantage") AND ("decision making process" OR "decision making" OR "management")]. The search was conducted in English. Only original articles were considered, resulting in a total of 317 documents selected for analysis.

## DATA ANALYSIS

## Purpose and Benefits:

- Identify Key Strengths: This question helps identify what aspects of your product or service are most appreciated by customers.
   Understanding these strengths allows you to emphasize these features in marketing and development efforts.
- Customer Satisfaction: By focusing on what customers like, you can gauge overall satisfaction and positive experiences, contributing to customer retention and lovalty.
- Feature Prioritization: Insights from this question can guide product development by highlighting features or services that resonate most with customers, ensuring resources are allocated effectively.
- Market Differentiation: Understanding what customers value most about your product/service can help distinguish your brand in a competitive market.

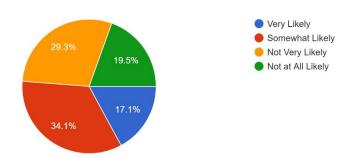
## Data Collection and Analysis:

- Qualitative Insights: Responses to this question are typically open-ended, providing rich qualitative data that can reveal nuances in customer
  preferences and experiences.
- Thematic Analysis: Analysing responses involves identifying common themes and patterns. This can be done manually or with text analysis tools that categorize feedback into key areas.
- Customer Segmentation: By segmenting responses based on demographics or customer profiles, you can identify whether certain features
  appeal more to specific groups, allowing for targeted improvements and marketing strategies.

## Implementation and Follow-up:

- Continuous Improvement: Regularly asking this question can track changes in customer preferences over time, helping to adapt and evolve your product/service in response to feedback.
- 2. **Communication**: Sharing positive feedback within the company can boost morale and provide motivation. Externally, customer testimonials derived from these responses can enhance marketing efforts.
- Addressing Gaps: While the question focuses on positives, analysing what is not mentioned can also be telling. If certain features or services
  are rarely highlighted, it might indicate areas needing improvement or more visibility

How likely are you to recommend our product/service to a friend or colleague? 41 responses



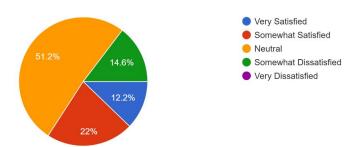
## **Purpose and Benefits:**

- 1. Measure Customer Loyalty: This question gauges the likelihood of customers promoting your product/service, which is a strong indicator of their overall satisfaction and loyalty.
- 2. Predict Growth: High NPS scores are correlated with business growth as they reflect a positive customer experience and potential for word-of-mouth marketing.
- Benchmark Performance: NPS allows you to benchmark your performance against industry standards and track changes over time, providing
  insights into how customer sentiment evolves.

## **Data Collection and Analysis:**

- 1. Quantitative Data: Responses are typically on a scale from 0 to 10, making it easy to quantify and analyse.
- Segmentation:
  - Promoters (9-10): Highly satisfied customers likely to recommend your product/service, driving positive word-of-mouth and repeat business.
  - O Passives (7-8): Satisfied but unenthusiastic customers who could easily switch to a competitor.
  - O Detractors (0-6): Unhappy customers who may discourage others from using your product/service.

How satisfied are you with your job? 41 responses

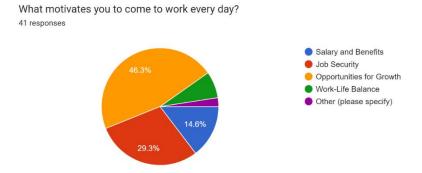


## **Purpose and Benefits:**

- Assess Overall Satisfaction: This question provides a broad measure of an employee's overall satisfaction with their job, which is crucial for understanding their engagement and morale.
- 2. Identify Areas for Improvement: It helps identify if there are general or specific areas that need attention to improve job satisfaction.
- Predict Employee Retention: High job satisfaction is often linked to lower turnover rates, so this question can be a predictor of employee retention.
- 4. **Enhance Workplace Environment**: Understanding job satisfaction can guide initiatives to improve the work environment, company culture, and employee well-being.

## **Data Collection and Analysis:**

- 1. Quantitative Data: Responses are often collected on a Likert scale (e.g., 1 to 5 or 1 to 10), allowing for quantitative analysis.
- Qualitative Insights: Pairing this question with open-ended follow-up questions can provide qualitative insights into specific factors influencing satisfaction.
- Trend Analysis: Regularly asking this question in surveys allows for tracking changes in job satisfaction over time, identifying trends, and assessing the impact of changes or initiatives.
- Segmentation: Analysing responses by different employee segments (e.g., departments, job roles, tenure) can highlight specific areas of concern or satisfaction within the organization.



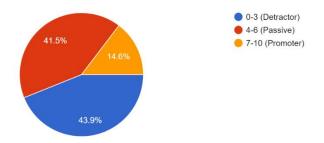
## **Purpose and Benefits:**

- Understand Motivational Drivers: This question helps identify what intrinsically and extrinsically motivates employees, providing insights into their engagement and dedication.
- Enhance Employee Engagement: By understanding what motivates employees, management can tailor strategies to enhance engagement, satisfaction, and productivity.
- Retention and Morale: Motivated employees are more likely to stay with the company and contribute positively, so identifying and fostering these motivators can improve retention and morale.
- Personalized Management: Managers can use this information to provide personalized support and recognition, aligning tasks and responsibilities with employees' motivations.

## **Data Collection and Analysis:**

- 1. Qualitative Insights: Responses to this open-ended question provide rich qualitative data that can reveal personal and diverse motivations.
- Thematic Analysis: Analysing responses involves identifying common themes and patterns, such as career growth, work environment, relationships with colleagues, company culture, and personal fulfilment.
- Segmentation: Responses can be segmented by department, job role, tenure, and other demographics to identify specific motivators for different groups within the organization.

On a scale of 0-10, how likely are you to recommend our product/service to a friend or colleague?

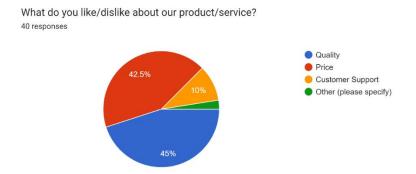


#### **Purpose and Benefits:**

- Measure Customer Loyalty: This question assesses the likelihood of customers promoting your product/service, which is a strong indicator
  of their loyalty and satisfaction.
- Predict Business Growth: High NPS scores are correlated with positive word-of-mouth marketing and customer retention, both critical for business growth.
- 3. Benchmark Performance: NPS allows comparison against industry standards and competitors, providing context for your performance.
- 4. Simple and Effective: The straightforward nature of the question makes it easy for customers to respond and for companies to analyse.

## **Data Collection and Analysis:**

- 1. **Quantitative Data**: Responses are collected on a scale of 0 to 10, enabling straightforward quantitative analysis.
- 2. Categorization:
  - O Promoters (9-10): Loyal enthusiasts likely to recommend your product/service, contributing to growth.
  - Passives (7-8): Satisfied but unenthusiastic customers who are vulnerable to competitive offerings.
  - Detractors (0-6): Unhappy customers who may discourage others from using your product/service.



## **Purpose and Benefits:**

- Identify Strengths and Weaknesses: This question helps pinpoint specific aspects of your product or service that customers appreciate or find lacking.
- 2. Holistic View: Collecting both likes and dislikes offers a balanced perspective, giving a comprehensive understanding of customer sentiment.
- Customer-Centric Improvements: Feedback can guide targeted improvements and enhancements, aligning your product/service more
  closely with customer needs and preferences.
- 4. Enhance Customer Satisfaction: Addressing dislikes and enhancing likes can improve overall customer satisfaction and loyalty.

## **Data Collection and Analysis:**

- Qualitative Insights: The open-ended nature of this question provides rich qualitative data, offering nuanced insights into customer experiences.
- 2. **Thematic Analysis**: Responses can be analysed to identify common themes and patterns. This involves categorizing feedback into key areas such as product features, customer service, pricing, usability, etc.
- 3. **Segmentation**: Analysing responses by different customer segments (e.g., demographics, usage patterns, purchase history) can highlight specific preferences and pain points unique to each group.

## Research Gap

Despite recognizing the importance of Business Intelligence (BI) tools for small business growth, several critical research gaps remain. Firstly, there's a noticeable disparity in the adoption and use of BI tools between large enterprises and small businesses. Large companies have the resources and infrastructure to utilize advanced BI tools, whereas small businesses often struggle due to limited financial and technical resources. This disparity underscores the need for research focused on scalable and cost-effective BI solutions specifically designed for small businesses. Understanding how small businesses can overcome these barriers and effectively integrate BI tools is essential.

Secondly, existing literature often emphasizes the technical aspects and potential benefits of BI tools, but tends to overlook the practical challenges and contextual factors that small businesses face when adopting these tools. Small businesses may encounter unique obstacles such as a lack of skilled personnel, resistance to change, and limited access to high-quality data. Research that explores these practical challenges and provides actionable strategies for small businesses is crucial. Such studies could offer insights into best practices, training programs, and support mechanisms that can facilitate the effective use of BI tools.

Another significant research gap lies in the limited empirical evidence on the specific impacts of BI tools on various aspects of small business performance. While it is generally accepted that BI tools can enhance decision-making, customer relationship management, and operational efficiency, there is a lack of detailed empirical studies that quantify these impacts. Research employing robust methodologies to measure the tangible benefits of BI tools for small businesses, such as increased revenue, improved customer satisfaction, and reduced operational costs, would be highly valuable.

Additionally, the rapid pace of technological advancements calls for ongoing research into the evolving landscape of BI tools and their implications for small businesses. Emerging technologies like artificial intelligence, machine learning, and big data analytics are increasingly being integrated into BI tools, presenting new opportunities and challenges. Research that investigates how small businesses can leverage these advanced technologies to gain a competitive edge would significantly contribute to the field. Addressing these research gaps is vital for gaining a comprehensive understanding of how small businesses can effectively adopt and utilize BI tools to foster growth. Bridging the gap between theoretical potential and practical implementation will empower small businesses to harness the full benefits of BI tools and drive their growth and success.

## Research methodology.

The current research may show the bibliometric indicators using both Bibliophagy and VOS viewer, which will emphasize the extent to which the model of business intelligence helps to boosting competitive advantage and increasing the decision-making process. The number of publications and articles, as well as the number of citations and keywords, are some of the primary bibliometric indicators employed in this study endeavour. Additionally, the development of various maps and figures will show the research state and dynamics of the business intelligence model from 2007 to 2022 in order to visualize the findings.

## Data Analysis.

## Results

Characterization of the Articles.

- 1. Chronological Evolution:
- We examined the number of articles published each year since 2010 in the fields of business and management, with a particular focus on Digital Transformation (DT).
- We also tracked the number of citations these articles received over time, providing insight into their influence and relevance.

Overview of Top-Cited Articles.

- We identified the most frequently cited articles in our dataset.
- This overview includes information about where these influential articles were published, both nationally and internationally, highlighting the key contributors to the field.
- 2 Keyword Analysis

In this section, we present the results of our keyword analysis, which helps illustrate the conceptual structure of the articles included in this study. By examining the most common keywords, we can identify the primary topics and trends in DT research.

3 Analysis of Co-Occurring Words

Finally, we analyse the co-occurrence of words within the articles. This analysis helps establish the dominant themes and reveals how different concepts are related. By identifying patterns in the co-occurrence of terms, we can better understand the major areas of focus and emerging trends in the literature on Digital Transformation in business and management.

## **Discussion and Conclusions**

Today's businesses have access to a vast amount of data from clients, suppliers, internal operations, and other sources. Properly processed, this data can be transformed into valuable information, shared across all company departments to enhance communication and aid in planning various processes. This data can significantly contribute to decision-making at all levels, which is crucial for any business's survival and growth in today's competitive environment. Business Intelligence (BI) and its various tools are central to this challenge.

Business Intelligence involves technology and methods for analysing and processing data to uncover valuable insights. These insights are used by management to make informed decisions. The BI decision-making process includes several stages: collecting data from various sources, storing, retrieving, sorting, and processing it into useful information. The European Union (EU) offers a wealth of tools like Online Analytical Processing (OLAP), data warehouses, data centres, visualization tools, and more. BI systems support decision-making at all levels, from daily operations to strategic management decisions. Initially, BI systems were only used by large multinational organizations due to high costs, but today they are prevalent in almost all business sectors, including industry, commerce, insurance, banking, and telecommunications. The benefits of these systems, such as a better understanding of customers, cost reduction, and competitive advantage, far outweigh their costs.

Choosing the right BI system is critical and requires careful research. Businesses must ensure the chosen product meets their needs and can handle both simple and complex functions. The system should be user-friendly, not requiring specialized personnel or capabilities to adapt to new data. It should allow easy data sharing between users, integrate multiple databases seamlessly, and operate without expensive hardware. With technological advancements, global market integration, financial crises, and constant changes, competition among businesses has intensified. Meeting consumer needs and desires requires coordinated efforts and accurate information across all departments.

This study highlights the importance of BI systems in enhancing competitive advantage and improving decision-making for small and medium-sized enterprises (SMEs). Adopting BI requires a thorough understanding of its purpose and benefits. Although several studies have explored BI adoption drivers and theories, there is insufficient research on SMEs' readiness to implement BI. This information is useful for SME owners and senior managers promoting BI more proactively. More empirical research on factors and obstacles affecting BI adoption is needed. Various frameworks and models have emerged to help identify elements crucial for effective BI deployment. Combining BI with the Technology-Organization-Environment (TOE) framework

is particularly important for SMEs, as it aids in integrating emerging technologies. Executives should develop a business model based on these factors. Once developed, this model can be applied to a sample of SMEs from different economic sectors through empirical research using questionnaires. The findings can help SMEs adopt the business model correctly and understand its advantages and disadvantages.

Additionally, SMEs should strengthen their foundations for implementing and using BI methods to enhance growth. SMEs engaged in BI initiatives can build digital and circular economy-based goods, services, processes, or activities by employing collaborative, innovative, and agile practices. They should focus on utilizing marketing automation and digital opportunities while establishing commercialization operations. Increased cooperation between SMEs and higher education institutes can also be beneficial. Benchmarking workshops and meetings can be organized to share and improve business knowledge-based solutions, and college and university students can play an active role in SME growth.

In today's rapidly changing environment, consumers demand faster and more efficient service from businesses. To remain competitive, SMEs must meet or exceed consumer expectations. SMEs will need to rely more heavily on BI systems to stay ahead of trends and developments. BI users are starting to demand real-time analysis of their activities, especially those in "frontline" roles, similar to how stock prices are monitored online. Monthly or even weekly analyses will not suffice. In the future, SMEs will depend on real-time business information just as people search for information online with a click. Business information will become more democratized, allowing any employee to access information about their department's performance. Consequently, the required BI capabilities will increase alongside consumer expectations and demands, making it imperative for businesses to improve their pace to remain competitive.

## REFERENCES:

- Huang ZX, Savita KS, Dan-yi L, Omar AH. The impact of business intelligence on the marketing with emphasis on cooperative learning: case-study on the insurance companies. Inf Process Manag. 2022. <a href="https://doi.org/10.1016/j.ipm.2021.102824">https://doi.org/10.1016/j.ipm.2021.102824</a>.
- Nguyen TUH. Information technology adoption in SMEs: an integrated framework. Int J Entrepreneurial Behav Res. 2009;15(2):162–86. https://doi.org/10.1108/13552550910944566/FULL/XML.
- 3. Żółtowski D. Business intelligence in balanced scorecard: bibliometric analysis. Procedia Comput Sci. 2022;207:4075–86. https://doi.org/10.1016/J.PROCS.2022.09.470.
- Wang J, Omar AH, Alotaibi FM, Daradkeh YI, Althubiti SA. Business intelligence ability to enhance organizational performance and performance evaluation capabilities by improving data mining systems for competitive advantage. Inf Process Manag. 2022. https://doi.org/10.1016/j.ipm.2022.103075.
- 5. Luhn HP. A business intelligence system. IBM J Res Dev. 2010;2(4):314–9. https://doi.org/10.1147/RD.24.0314.
- Tutunea MF, Rus RV. Business intelligence solutions for SME's. Procedia Econ Finance. 2012;3:865–70. <a href="https://doi.org/10.1016/s2212-5671(12)00242-0">https://doi.org/10.1016/s2212-5671(12)00242-0</a>.
- Perdana A, Lee HH, Arisandi D, Koh SK. Accelerating data analytics adoption in small and mid-size enterprises: a Singapore context. Technol Soc. 2022. <a href="https://doi.org/10.1016/j.techsoc.2022.101966">https://doi.org/10.1016/j.techsoc.2022.101966</a>.
- Kalaitzi D, Tsolakis N. Supply chain analytics adoption: determinants and impacts on organisational performance and competitive advantage. Int J Prod Econ. 2022. <a href="https://doi.org/10.1016/j.ijpe.2022.108466">https://doi.org/10.1016/j.ijpe.2022.108466</a>.
- Antoniadis I, Tsiakiris T, Tsopogloy S. Business intelligence during times of crisis: adoption and usage of ERP systems by SMEs. Procedia Soc Behav Sci. 2015;175:299–307. https://doi.org/10.1016/j.sbspro.2015.01.1204.
- 10. Sin KY, Osman A, Salahuddin SN, Abdullah S, Lim YJ, Sim CL. Relative advantage and competitive pressure towards implementation of e-commerce: overview of small and medium enterprises (SMEs). Procedia Econ Finance. 2016;35:434–43. <a href="https://doi.org/10.1016/s2212-5671(16)00054-x">https://doi.org/10.1016/s2212-5671(16)00054-x</a>.
- 11. Munir A, Lim MK, Knight L. Sustaining competitive advantage in SMEs. Procedia Soc Behav Sci. 2011;25:408–12. https://doi.org/10.1016/j.sbspro.2012.02.052.
- 12. Khayer A, Talukder MS, Bao Y, Hossain MN. Cloud computing adoption and its impact on SMEs' performance for cloud supported operations: a dual-stage analytical approach. Technol Soc. 2020. <a href="https://doi.org/10.1016/j.techsoc.2019.101225">https://doi.org/10.1016/j.techsoc.2019.101225</a>.
- 13. Liu Y, Soroka A, Han L, Jian J, Tang M. Cloud-based big data analytics for customer insight-driven design innovation in SMEs. Int J Inf Manage. 2020. https://doi.org/10.1016/j.ijinfomgt.2019.11.002.
- Khan RU, Richardson C, Salamzadeh Y. Spurring competitiveness, social and economic performance of family-owned SMEs through social entrepreneurship; a multi-analytical SEM & ANN perspective. Technol Forecast Soc Chang. 2022. https://doi.org/10.1016/j.techfore.2022.122047.
- 15. Peters MD, Wieder B, Sutton SG, Wakefield J. Business intelligence systems use in performance measurement capabilities: implications for enhanced competitive advantage. Int J Account Inf Syst. 2016;21:1–17. https://doi.org/10.1016/j.accinf.2016.03.001.
- Wang Z, Li M, Lu J, Cheng X. Business Innovation based on artificial intelligence and Blockchain technology. Inf Process Manag. 2022. <a href="https://doi.org/10.1016/j.ipm.2021.102759">https://doi.org/10.1016/j.ipm.2021.102759</a>.
- Verma N, Sharma V. Sustainable competitive advantage by implementing lean manufacturing a case study for Indian SME. Mater Today Proc. 2017;4(8):9210–7. https://doi.org/10.1016/j.matpr.2017.07.279.
- Kumar A, Kalse A. Usage and adoption of artificial intelligence in SMEs. Mater Today Proc. 2022. https://doi.org/10.1016/j.matpr.2021.01.595.
- 19. Marcucci G, Ciarapica F, Poler R, Sanchis R. A bibliometric analysis of the emerging trends in silver economy. IFAC-PapersOnLine. 2021;54(1):936–41. https://doi.org/10.1016/J.IFACOL.2021.08.190.
- 20. Xie L, Chen Z, Wang H, Zheng C, Jiang J. Bibliometric and visualized analysis of scientific publications on atlantoaxial spine surgery based on web of science and VOSviewer. World Neurosurg. 2020;137:435-442.e4. https://doi.org/10.1016/J.WNEU.2020.01.171.

- 21. Tamala JK, Maramag EI, Simeon KA, Ignacio JJ. A bibliometric analysis of sustainable oil and gas production research using VOSviewer. Clean Eng Technol. 2022. https://doi.org/10.1016/J.CLET.2022.100437.
- 22. Aria M, Cuccurullo C. bibliometrix: an R-tool for comprehensive science mapping analysis. J Informet. 2017;11(4):959–75. https://doi.org/10.1016/J.JOI.2017.08.007.
- Amrutha VN, Geetha SN. A systematic review on green human resource management: implications for social sustainability. J Clean Prod. 2020. <a href="https://doi.org/10.1016/j.jclepro.2019.119131">https://doi.org/10.1016/j.jclepro.2019.119131</a>.
- 24. Faruk M, Rahman M, Hasan S. How digital marketing evolved over time: a bibliometric analysis on scopus database. Heliyon. 2021. https://doi.org/10.1016/J.HELIYON.2021.E08603.
- 25. Aziz NNA, Samad S. Innovation and competitive advantage: moderating effects of firm age in foods manufacturing SMEs in Malaysia. Procedia Econ Finance. 2016;35:256–66. https://doi.org/10.1016/s2212-5671(16)00032-0.
- 26. Simms C, McGowan P, Pickernell D, Vazquez-Brust D, Williams A. Uncovering the effectual-causal resilience nexus in the era of Covid-19: a case of a food sector SME's resilience in the face of the global pandemic. Ind Mark Manage. 2022;106:166–82. https://doi.org/10.1016/j.indmarman.2022.08.012.
- 27. Hossain MR, Akhter F, Sultana MM. SMEs in Covid-19 crisis and combating strategies: a systematic literature review (SLR) and a case from emerging economy. Oper Res Perspectives. 2022. <a href="https://doi.org/10.1016/j.orp.2022.100222">https://doi.org/10.1016/j.orp.2022.100222</a>.
- Maier R. Knowledge management systems: information and communication technologies for knowledge management. Heidelberg: Springer Berlin; 2007. <a href="https://doi.org/10.1007/978-3-540-71408-8">https://doi.org/10.1007/978-3-540-71408-8</a>.
- Chatterjee S, Rana NP, Dwivedi YK, Baabdullah AM. Understanding AI adoption in manufacturing and production firms using an integrated TAM-TOE model. Technol Forecast Soc Chang. 2021;170:120880. <a href="https://doi.org/10.1016/J.TECHFORE.2021.120880">https://doi.org/10.1016/J.TECHFORE.2021.120880</a>.
- Dadhich M, Hiran KK. Empirical investigation of extended TOE model on corporate environment sustainability and dimensions of operating performance of SMEs: a high order PLS-ANN approach. J Clean Prod. 2022. https://doi.org/10.1016/j.jclepro.2022.132309.
- Todericiu R, Stăniţ A. Intellectual capital—the key for sustainable competitive advantage for the SME's sector. Procedia Econ Finance. 2015;27:676–81. https://doi.org/10.1016/s2212-5671(15)01048-5.
- 32. Zide O, Jokonya O. Factors affecting the adoption of Data Management as a Service (DMaaS) in Small and Medium Enterprises (SMEs). Procedia Comput Sci. 2021;196:340–7. <a href="https://doi.org/10.1016/j.procs.2021.12.022">https://doi.org/10.1016/j.procs.2021.12.022</a>.
- Basloom RS, Sani Mohamad MH, Auzair SM. Applicability of public sector reform initiatives of the Yemeni government from the integrated TOE-DOI framework. Int J Innov Stud. 2022;6(4):286–302. https://doi.org/10.1016/j.ijis.2022.08.005.
- 34. Wessels T, Jokonya O. Factors affecting the adoption of big data as a service in SMEs. Procedia Comput Sci. 2021;196:332–9. https://doi.org/10.1016/j.procs.2021.12.021.
- Härting RC, Sprengel A. Cost-benefit considerations for data analytics—an SME-oriented framework enhanced by a management perspective and the process of idea generation. Procedia Comput Sci. 2019;159:1537–46. https://doi.org/10.1016/j.procs.2019.09.324.
- Hassani A, Mosconi E. Social media analytics, competitive intelligence, and dynamic capabilities in manufacturing SMEs. Technol Forecast Soc Chang. 2022. https://doi.org/10.1016/j.techfore.2021.121416.