

Leveraging Excel-based Business Intelligence for Micro-enterprise Growth: The Case Study of Brother's Wagon Street Food Stall in Kolhapur, Maharashtra, India

Varad Rajan Bhanage ^{a++}, Tejas P. Sawan ^{a++},
Vijaykumar Khot ^{a++} and Sourabh B. Barale ^{a++}

^a Department of Management Studies, Vivekanand College Kolhapur, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: <https://doi.org/10.9734/ajess/2025/v51i102474>

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://pr.sdiarticle5.com/review-history/144385>

Short Research Article

Received: 28/07/2025
Published: 22/09/2025

ABSTRACT

In the present era of data-driven decision-making, businesses across the globe are increasingly adopting technologies and systems to gain competitive advantages. Research indicates that more than 90% of organizations, regardless of size, rely on data analytics and business intelligence tools to streamline their operations and improve performance. Importantly, this trend is no longer confined to established corporations and large-scale enterprises. Even small businesses, micro-enterprises, and those operating in the unorganized sector are embracing digital solutions to enhance efficiency.

** Assistant Professor;

*Corresponding author: Email: bhanagevarad@gmail.com;

Cite as: Varad Rajan Bhanage, Tejas P. Sawan, Vijaykumar Khot, and Sourabh B. Barale. 2025. "Leveraging Excel-based Business Intelligence for Micro-Enterprise Growth: The Case Study of Brother's Wagon Street Food Stall in Kolhapur, Maharashtra, India". Asian Journal of Education and Social Studies 51 (10):58–63.
<https://doi.org/10.9734/ajess/2025/v51i102474>.



This case study focuses on a micro-enterprise in the unorganized food sector of Kolhapur city, highlighting its journey of adopting business analytics practices. The study demonstrates how the vendor systematically recorded sales, monitored expenses, and managed inventory using simple yet powerful tools like Microsoft Excel. By shifting from intuition-based decisions to data-supported strategies, the business was able to identify customer demand patterns, minimize wastage, and optimize resources. The results reveal that integrating business analytics not only improved day-to-day operational efficiency but also contributed to maximizing profitability, with the enterprise achieving nearly 60–70% gains. This case exemplifies the broader transformation occurring at the grassroots level, where micro and small-scale industries are leveraging digital practices to ensure sustainability, competitiveness, and long-term growth.

Keywords: Micro-enterprise; excel-based business; sustainability; minimize wastage.

1. INTRODUCTION

Business Intelligence (BI) tools have traditionally been deployed by medium and large-scale enterprises that possess the financial capacity, technological infrastructure, and skilled manpower required to implement sophisticated data-driven practices (Maghsoudi & Nezafati, 2023). For an extended period, the prevailing assumption was that small businesses and micro-enterprises, particularly those operating within the unorganized sector lacked both the resources and imperative to adopt such systems. However, this paradigm is shifting. The widespread diffusion of digital literacy, growing access to low-cost devices, and the availability of simple yet powerful platforms such as Microsoft Excel are reshaping how even the smallest businesses manage their operations.

Recent research underscores this transformation. Hoang and Bui (2023) and Mavutha, (2023) examine Business Intelligence and Analytics (BIA) adoption within micro, small, and medium-sized enterprises (MSMEs), identifying phased adoption stages and demonstrating that even resource-constrained entities can progress towards data integration when contextual support and leadership competencies are present. Similarly, studies focused on micro-small apparel businesses reveal that BI tools can significantly enhance decision-making efficiency when adapted to the operational scale of micro-enterprises (Ragazou, et al., 2023). Furthermore, research in small apparel retailers highlights that despite cost being a barrier, many micro-business owners perceive BI solutions as financially viable and operationally beneficial (Quinde & Quinde, 2025).

In response, micro-enterprises and unorganized sector businesses, including street food vendors, are beginning to recognize the value of data-driven insights for everyday business

management. (Fu et al., 2022). Historically, these operators relied on intuition, experiential know-how, or trial-and-error methods to guide decisions. While such approaches can yield practical results, they often result in inefficiencies, untracked expenses, and foregone growth opportunities. (Kasiri et al., 2024). The integration of BI practices, employing basic tools like Excel spreadsheets, empowers these businesses to systematically record, analyze, and interpret daily sales, expenses, and inventory dynamics. Leveraging straightforward formulas, charts, and trend analyses, vendors can gain enhanced clarity on customer demand patterns, cash-flow cycles, and profit margins.

This case study centres on *Brother's Wagon*, a prominent street food stall in *Tarabai Park, Kolhapur, Maharashtra*. The stall exemplifies the emerging trend of micro-entrepreneurs who incorporate digital tools into routine operations. The study delineates how Excel-based analytics enabled the proprietor to monitor sales performance, manage inventory more effectively, and achieve finer control over cash flows. Crucially, these adaptations required no substantial financial outlay or advanced technical skills, thus illustrating the feasibility of BI solutions for small-scale micro-enterprises.

By presenting this example, the paper aims to demonstrate the transformative potential of accessible BI tools, not only in enhancing individual enterprise profitability and sustainability but also in advancing the broader modernization of the unorganized sector.

1.1 Objectives of the Case Study

1. To understand how street food vendors utilize MS- Excel BI tool for operational efficiency.

This objective focuses on analyzing how street food vendors, often operating in the unorganized sector, adopt simple yet

powerful tools like MS-Excel to manage their daily operations. Vendors can track sales, expenses, and inventory using Excel spreadsheets, which reduces manual errors and improves efficiency. The use of pivot tables, charts, and dashboards helps them visualize business trends and customer demand patterns. By understanding these practices, we can highlight how accessible technology supports micro-entrepreneurs in decision-making. This will also showcase the role of low-cost BI tools in improving competitiveness among small-scale food businesses.

2. To elaborate conceptual background of Business Analytics.

This objective aims to explain the theoretical foundation of Business Analytics, its scope, and its significance in modern business environments. It includes understanding descriptive, diagnostic, predictive, and prescriptive analytics, along with their practical implications. The focus is on how businesses use data to generate insights, optimize performance, and support strategic decisions. By elaborating on concepts, frameworks, and methodologies, learners will gain clarity on the importance of analytics in decision-making. This theoretical grounding will serve as a bridge between academic learning and practical applications across industries.

3. To develop teaching-learning material for understanding Business Intelligence.

The objective emphasizes creating structured teaching-learning resources that simplify complex Business Intelligence (BI) concepts for students and practitioners. Such materials may include case studies, practical exercises, datasets, and dashboard-building tutorials using tools like MS-Excel, Power BI, or Tableau. The content will be designed to encourage interactive learning, enabling learners to connect theory with practice. By doing so, the material will help students develop both conceptual understanding and technical skills. This effort ensures that BI education is accessible, engaging, and relevant to real-world applications.

2. METHODOLOGY

The present study employs a qualitative case study approach to gain in-depth insights into the role of business intelligence tools in the unorganized street food sector. A case study design is particularly suitable as it allows for the exploration of real-life practices, challenges, and strategies adopted by micro-entrepreneurs. This methodology enables the researcher to capture rich, contextual data beyond mere numerical analysis, thereby uncovering patterns of technology adoption and operational efficiency. The study is grounded in established business research methodologies to ensure academic rigor and reliability. Multiple sources of evidence, including interviews, observations, and document analysis, were utilized to enhance validity and provide a holistic understanding of the phenomenon. This approach also facilitates linking theoretical concepts of Business Analytics with their practical implications in small-scale business operations.

The research adopts a qualitative case study approach, grounded in business research methodologies. Data was collected through:

- Semi-structured interviews with the stall owner and supporting staff.
- Observations of daily business practices, customer inflows, and sales recording processes.
- Analysis of Excel sheets maintained by the vendor for sales, expenses, and inventory management.

The data was coded thematically to derive insights into the effectiveness of BI practices within this micro-enterprise.

3. CASE DESCRIPTION: BROTHER'S WAGON

Brother's Wagon, located in *Tarabai Park, Kolhapur*, is a well-recognized street food stall among locals in the city's informal food sector. Specializing in fast-food items such as rolls, Momo, and other quick snacks, the enterprise has become a popular destination for local customers seeking affordable yet quality food options. Since its establishment in 2018, the stall has steadily built a loyal customer base by maintaining competitive pricing and ensuring consistency in taste and service, two crucial elements for long-term sustainability in the highly competitive unorganized street food industry.



What distinguishes *Brother's Wagon* from many other street vendors is its early and conscious embrace of structured business practices. In 2022, the proprietor adopted a systematic approach to business management through the use of Microsoft Excel, moving beyond the traditional reliance on intuition and manual record-keeping. This transformation was driven by exposure to basic computer literacy programs and informal peer discussions, which highlighted the potential of digital tools in improving operational oversight.

By recording and analyzing daily sales, tracking expenses, and monitoring inventory with Excel spreadsheets, the stall gained the ability to generate meaningful insights into its financial and operational performance. For example, the vendor could identify best-selling products, forecast demand for weekends, and reduce wastage by aligning procurement with sales patterns. Such practices not only enhanced efficiency but also strengthened profitability. The case of *Brother's Wagon* therefore illustrates a broader trend among micro-entrepreneurs who are beginning to integrate Business Intelligence practices into their operations, signalling a gradual modernization of the unorganized sector.

3.1 Key Areas of BI Application Observed Include

3.1.1 Sales analytics

The vendor systematically recorded daily sales in Excel, ensuring accurate tracking of revenue and customer demand. By using built-in formulas, total daily and weekly revenue was automatically calculated, saving time and minimizing human error. Average sales per day were derived to understand the typical business performance and detect any sudden fluctuations. Peak business hours were identified by analyzing hourly sales data, allowing the owner to focus on staffing and resource allocation during rush hours. This analysis also highlighted the best-selling items, which became the focus of marketing and promotional efforts. Less popular items were either discontinued or improved to suit customer preferences. Ultimately, this analytical approach enabled dynamic pricing strategies and optimized sales growth.

3.1.2 Cash flow monitoring

The vendor maintained separate Excel sheets for expenses and income, ensuring financial transparency. Expenses included raw materials like chicken, vegetables, sauces, fuel (gas), and

wages, which were logged daily or weekly. Income was divided into cash sales and digital payments, offering a clear picture of payment trends among customers. With formulas, net profit was calculated instantly by subtracting total expenses from total income. This setup helped identify patterns of overspending and prevented cash leakages, which are common in informal businesses. Monitoring digital vs. cash sales also gave insights into customer payment behavior, aiding in financial planning. As a result, the vendor had better financial control and could make informed reinvestment decisions.

3.1.3 Inventory management

To avoid shortages and wastage, the vendor used Excel-based templates to track raw materials such as chicken, vegetables, bread, and sauces. Stock levels were updated daily, reflecting consumption and remaining quantity. Conditional formatting was used to highlight when items reached below a safety stock level, ensuring timely procurement. This reduced the risk of stockouts during peak hours and minimized food wastage from over-ordering. The vendor could also track supplier performance, delivery timelines, and price changes to optimize purchases. Seasonal variations in demand were incorporated into stock planning, ensuring balance between availability and freshness. Thus, inventory management enhanced efficiency and contributed directly to profit maximization.

3.1.4 Customer demand forecasting

(Anjaningrum et al., 2024) Weekly sales data was analyzed to identify demand patterns, such as high sales on weekends and lower activity on weekdays. Seasonal variations, such as festive rush or summer beverage demand, were also captured in the analysis. Excel trendlines and charts helped in visualizing these patterns, making future demand easier to predict. By anticipating peak demand, the vendor planned stock levels and avoided over- or under-purchasing raw materials. Staffing schedules were also optimized, ensuring more workers were available during rush hours and fewer during lean times. This predictive approach reduced wastage, improved service quality, and boosted customer satisfaction. Over time, demand forecasting provided a competitive edge by aligning supply with customer preferences more accurately.

The adoption of Excel at *Brother's Wagon* transformed operations by automating



calculations, reducing manual errors, and generating instant financial summaries such as revenue, expenses, and profit margins. This improved accuracy saved time, minimized cash flow discrepancies, and allowed greater focus on customer service and quality. Decision-making shifted from intuition to data-driven insights, as sales analysis revealed weekends contributed nearly 40% of revenue, prompting better stock preparation and staffing. Systematic tracking also identified cost leakages like over-purchasing perishables, leading to improved procurement and a 12–15% rise in monthly profits. Monitoring both cash and digital payments strengthened financial discipline and prevented revenue loss. Beyond efficiency and profitability, Excel fostered a professional outlook, giving the vendor confidence to scale while inspiring nearby stalls to adopt digital practices, signalling a gradual shift toward modernization in the unorganized sector.

Brother's Wagon's adoption of Excel brought clear benefits, but several challenges limited its full potential. The vendor's lack of digital literacy made even basic Excel functions like formulas, charts, or linking sheets difficult to use, slowing adoption and causing occasional errors. Time constraints also posed a barrier, as maintaining daily records required discipline that often clashed with the fast-paced nature of running a food stall, leading to delays and inaccuracies. Moreover, Excel's limitations became evident—while useful for basic trend analysis, it lacked advanced BI features such as interactive dashboards, predictive analytics, and real-time visualization. Additional challenges included limited access to affordable hardware, dependence on manual data entry that risked inaccuracies, and resistance to adopting new practices due to fear of complexity. These hurdles highlight that while Excel is a valuable entry-level tool, sustained BI adoption in micro-enterprises requires training, technological support, and gradual transition to more advanced platforms.

4. CONCLUSION

The case of *Brother's Wagon* demonstrates that even small-scale, unorganized businesses can gain substantial advantages through the adoption of simple and affordable business intelligence (BI) tools such as Microsoft Excel. (Alsibhawi et al., 2023). By organizing sales records, monitoring inventory, and tracking cash flow systematically, the vendor was able to streamline operations, reduce manual errors, and

make informed decisions. This structured approach not only enhanced operational efficiency but also improved profitability by identifying cost leakages and reducing wastage. Importantly, it reflects a shift from intuition-driven practices to evidence-based planning, marking a step toward professionalization in the informal sector.

Although challenges such as limited digital literacy, time constraints, and the absence of advanced BI features persist, the case highlights the transformative potential of BI adoption at the grassroots level. If scaled across the unorganized sector, such practices could foster transparency, efficiency, and long-term sustainability, thereby strengthen India's micro-enterprise ecosystem and contribute to inclusive economic growth.

Teaching notes

• Discussion questions:

1. What role did Excel play in transforming *Brother's Wagon's* business practices?
2. How can BI adoption change the competitive landscape of micro-enterprises in the food sector?
3. What challenges might prevent widespread adoption of BI in the unorganized sector?
4. Recommend solutions for the challenges occurred.
5. Suggest a roadmap for a street vendor to transition from manual operations to advanced BI tools.

• Learning outcomes:

1. Understanding BI adoption in micro-enterprises

Learners will explore how micro-enterprises approach the integration of Business Intelligence (BI) tools despite limited resources. They will understand the specific needs, benefits, and barriers to BI adoption in very small businesses. Case insights will illustrate how even minimal BI adoption can improve decision-making and competitiveness.

2. Analyzing the role of digital literacy in unorganized sector businesses

Learners will assess how basic digital literacy skills directly impact the ability to utilize BI tools effectively.



evaluate the gap between technology availability and actual usage in the unorganized sector. Examples will highlight how training and awareness programs can bridge this digital divide.

3. Identifying practical challenges and scalable solutions for BI in grassroots enterprises

Learners will identify challenges such as cost, infrastructure, data management, and resistance to change. They will analyze scalable solutions like low-cost BI platforms, mobile-based dashboards, and cloud adoption. Discussions will emphasize policy support, collaborations, and community-based models for sustainable BI usage.

SUPPLEMENTARY MATERIALS

Supplementary material is available in the following link:
<https://journalajess.com/index.php/AJESS/library/Files/downloadPublic/16>

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

- Alsibhawi, M., Al-Sayyed, R., Alnajar, M., Alzo'bi, A., Alnazer, M., & Dmour, A. (2023). Business intelligence adoption for SMEs: A conceptual framework. *Applied Sciences*, 13(7), 4121.
- Anjaningrum, W. D., Azizah, N., & Suryadi, N. (2024). Spurring SMEs' performance through business intelligence, organizational and network learning, customer value anticipation, and innovation: Empirical evidence from East Java, Indonesia. *Heliyon*, 10(7), e27998.
- Fu, H.-P., Chang, T.-H., Teng, Y.-H., Liu, C.-H., & Chuang, H.-C. (2022). Critical factors considered by companies to introduce business intelligence systems. *Axioms*, 11(7), 338.
- Hoang, V. T., & Bui, H. T. M. (2023). Business intelligence and analytics adoption in micro-, small- and medium-sized enterprises: A process perspective. *Journal of Enterprise Information Management*.
- Kasiri, N., Cirino, V., & Narimanian, A. (2024). The patterns of business analytics adoption in US SMEs: A qualitative approach. *Small Business Institute Journal*, 19(1), 131–145.
- Maghsoudi, M., & Nezafati, N. (2023). Navigating the acceptance of implementing business intelligence in organizations: A system dynamics approach. *Telematics and Informatics Reports*, 11, 100070.
- Mavutha, W. (2023). *Adoption of business intelligence by micro-small apparel businesses in the great eThekweni region* (Master of Management Sciences in Retail Management). Durban University of Technology.
<https://openscholar.dut.ac.za/items/fa47501f-464b-4ac1-a70e-95f0bce02959>
- Quinde, M., & Quinde, J. (2025). Providing micro and small retail enterprises with business intelligence tools: A case study in Peru. *Universal Access in the Information Society*, 24(1), 487–502.
- Ragazou, K., Passas, I., Garefalakis, A., & Zopounidis, C. (2023). Business intelligence model empowering SMEs to make better decisions and enhance their competitive advantage. *Discover Analytics*, 1, Article 3.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of the publisher and/or the editor(s). This publisher and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.

© Copyright (2025): Author(s). The licensee is the journal publisher. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<https://pr.sdiarticle5.com/review-history/144385>





SCHOLARS ACADEMIC AND SCIENTIFIC SOCIETY

204, Borhawor, Murajhar, Hojai, Assam, India-782439, www.sassociety.com

(A Society Registered under Society Registration Act XXI of 1860, India)



This certificate confirms that "Dr. Varad Rajan Bhanage, Ms. Chitresha Nangare, Mr. Sourabh Barale" have published manuscript titled "Indigenous Wisdom and Circular Economy: A Case Analysis of Traditional Sustainable Practices in Indian Tribal Communities".

Journal: East African Scholars Multidisciplinary Bulletin
Abbreviated key title: East African Scholars Multidiscip Bull.
ISSN 2617-717X (Online) | ISSN 2617-4413 (Print)
Publisher: East African Scholars Publisher, Kenya

Details of Published Article as follow-

Volume : 8
Issue : 6
Year : 2025
Page Number : 145-160

Date of Issue: 31-12-2025



Mr. Nazim Hussain
CEO

SASPREdu International Pvt. Ltd.

Mobile: +91-9365665504, E-mail: hr@saspredu.com

OUR BRANCHES

Scholars Academic and
Scientific Publisher
House No-204,
Borhawor, Hojai, Assam
India-782439
www.saspublisher.com

Scholars Middle East
Publisher
Gold Souk, Deira, d - 24
D85, Dubai, United Arab
Emirates
www.scholarsmepub.com

Global Academic Journal's
Research Consortium
Gold Souk, Deira, d - 24
D85, Dubai, United Arab
Emirates
www.easpublisher.com

South Asian Research
Publication
Kadamtoli, Siddhirganj,
Dist-Narayanganj,
Bangladesh-1431
www.sarpublication.com

Cross Current
Publisher
Doboka, Hojai,
Assam
India-782435
www.crosscurrentpublisher.com

Indigenous Wisdom and Circular Economy: A Case Analysis of Traditional Sustainable Practices in Indian Tribal Communities.

Authors: ¹Dr. Varad Rajan Bhanage, ²Ms. Chitresha Nangare, ³Mr. Sourabh Barale.

(¹Assistant Professor, Department of Management Studies, Vivekanand College, Kolhapur.

²Assistant Professor, Department of Management Studies, Vivekanand College, Kolhapur.

³Assistant Professor, Department of Management Studies, Vivekanand College, Kolhapur.)

Abstract:

Indigenous communities across the Indian subcontinent have, for millennia, practiced principles that align closely with what is now recognized as the circular economy. Their ways of life, deeply inter-twined with nature, establishing sustainable resource management and regenerative ecological systems. This research adopts a qualitative approach, relying on the analysis of existing case studies to explore how Indian tribal communities have historically embodied the essence of the circular economy. The study synthesizes insights from multiple documented cases, drawing upon ethnographic records, environmental studies, and community development reports to interpret the cyclical and sustainable nature of indigenous resource practices. The findings from these analyzed cases reveal that traditional Indian tribal societies have long implemented efficient and regenerative systems through locally developed knowledge frameworks. Practices such as zero-waste agriculture, where every by-product of cultivation is reused or reintegrated into the ecosystem, demonstrate remarkable ecological foresight. Community-based systems of sharing and collective ownership further minimize waste and ensure equitable distribution of resources. This study concludes that the traditional practices of Indian tribal communities represent well-established models of circular living long before the term “circular economy” was conceptualized in modern discourse. By revisiting and integrating these indigenous models into present-day sustainability frameworks, policymakers and environmental planners can develop holistic, culturally grounded strategies that not only promote resource efficiency but also strengthen community resilience and ecological harmony.

Keywords: Circular Economy, Indigenous Knowledge, Indian Tribes, Traditional Ecological Knowledge, Sustainable Practices, Resource Management, Community Resilience

Introduction:

The concept of the circular economy (CE) has rapidly gained currency in global sustainability discourse as an alternative to the conventional linear model of “take-make-dispose”. Driven by concerns over resource depletion, climate change, and waste accumulation, CE frameworks emphasize reducing waste, reusing materials, recycling, remanufacturing, and designing systems for resilience (Pal, Gaur, Raj et al., 2025). The evolution of CE thinking has moved from early definitions focusing on material flows to more complex understandings that integrate social, economic, and cultural dimensions (Atabaki Fard, Sarkar, & Shetranjiwalla, 2025). Recognizing that material recovery alone is insufficient, scholars now examine how communities maintain value across product life cycles, preserve ecological integrity, and embed equity and local practices into circular systems.

