



## Research Article

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### Implementation and impact of integrated information systems in Albanian SME's

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#### Abstract

This research work analyses how information technology improves business efficiency, creates employment, and fosters economic development. This paper investigates the level of integrated information systems used by small and medium enterprises in Albania. The research philosophy employed in this research work based on the case study method, and researcher interaction has been applied as a technique for data collection. Through careful observation and investigation of practical and real cases, a complete picture of the actual interaction of factors and events are obtained. A self-selection sampling technique was used. Through this technique, cooperation with managers was enabled to recommend possible concrete improvements in the systems or subsystems of information they apply. Results indicate that while information technology adoption is growing, significant barriers such as financial constraints and lack of technical skills persist. The empirical work showed that the firms involved in the study used information systems for different aspects such as sales, accounting, or quality control, but they were not integrated. The lack of the "smart" use of the information systems hampered their efficiency and make them less competitive. By leveraging such systems, SMEs can overcome challenges posed by limited resources and achieve sustainable growth.

**Keywords:** Integrated information system, manufactories small and medium enterprises, information technology, Albania.

#### 1. Introduction

Small and Medium Enterprises (SMEs) play a crucial role in the Albanian economy, forming the backbone of the business sector. They are very important as a source

of employment, creating an entrepreneurial and innovative spirit, and are crucial for promoting competition. According to INSTAT publications, (INSTAT, 2024), SMEs constitute over 99.8% of the total number of businesses in Albania, reflecting their overwhelming presence across various industries. They dominate sectors such as trade, services, manufacturing, and agriculture. SMEs are a major source of employment in Albania, providing jobs to a significant portion of the workforce. They account for approximately 82% of total employment in the private sector, playing a vital role in reducing unemployment and poverty levels, especially in urban and rural areas (Xhindi, Kripa and Bisceglia, 2023).

It is matter of fact that SMEs are critical drivers of economic growth and employment in developing countries, in particularly. However, these businesses often face challenges in maintaining operational efficiency, resource management, and market competitiveness. The adoption of Integrated Information Systems (IIS) presents a significant opportunity for SMEs to enhance productivity, improve decision-making, and streamline operations. IIS refer to software solutions that integrate multiple business processes, such as accounting, inventory management, customer relationship management (CRM), and supply chain management, into a unified system (Zenku and Stefanovska, 2024).

Despite their significant role in the economy and the changes observed in recent years, SMEs have shortcomings in the use of information and communication technology. According to INSTAT (INSTAT, 2024) 29.7% of Albanian enterprises have specialists in the field of information and communication technology. The survey conducted by INSTAT indicates an increasing awareness and interest among business managers to take advantage of the opportunities offered by information and communication technology. This is evidenced by the growth in the use of social media and online sales.

A general picture on the level of using the IIS from Albanian enterprises is presented by INSTAT Survey (INSTAT, 2024). These data show that in 2020: cloud services, which refer to services used over the internet to access software, storage capacities, etc., were used by 18.2% of enterprises with internet access. The application of Customer Relationship Management (CRM) software has been used by 22.5% of enterprises. Electronic information for supply chains, which refers to the sending/receiving of all information related to the supply chain (e.g., inventory levels, production plans, forecasts, shipping progress) via computer networks or websites, has been used by 19.7% of enterprises that have used computers. The automatic sharing of information within the enterprise, which is used for planning and managing enterprise resources by sharing information between different functional areas, has been used by 35.1% of enterprises.

The implementation of IIS has both societal and economic impacts on Albanian SMEs, influencing how they operate, compete, and contribute to broader societal development. Despite their benefits, the adoption of IIS in SMEs in Albania has been slow due to various technical, financial, and organizational challenges. In this context, this paper contributes to add value to the topics providing moderated evidence on

the practical impact of a research work conducted with SMEs in Albania, regarding the level of the using of integrated information systems to better manage and increase the efficiency. Overall, our findings offer important insights into the managerial and policy implications of SMEs and business development ecosystems in Albania.

## **2. Literature review**

Information and Integration Systems play a crucial role in improving business efficiency, fostering innovation, and enhancing competitiveness for organizations, particularly SMEs. These systems integrate various aspects of a business, including data management, operations, and customer interactions, enabling companies to optimize processes and respond more effectively to market demands. Various researchers as (Khan, A.A., Laghari, A.A., Li, P., Mazhar Ali Dootio. A. M., & Karim. Sh., 2023); (Porter, 2001); (Andrade-Rojas, M. G., Li, S. Y., & Zhu, J. J., 2022) pointed out various aspects on the role of information technology (IT) in SMEs, including how IT enhances efficiency, fosters innovation, enables growth and a sustainable ecosystem.

The concept of IIS refers to a suite of software applications designed to manage and automate various business functions by integrating data across departments and units within an organization. The main components of IIS - Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Supply Chain Management (SCM), Business Intelligence (BI), and Human Resource Management (HRM) systems - work together to streamline processes, integrate data, and provide real-time information across departments. Some research work suggest that SMEs might be able to enhance their innovation by implementing comprehensive ERP Systems and CRM systems, leading to higher export intensity. The results support future research related to the functions of IT in the export process of internationalized SMEs (Lecerf, 2020). This pointed out that the importance of enhancing accounting information system service quality, fostering technological innovation, innovation and information technology is critical to effective knowledge management. However, organizations must be mindful of the high costs and complexity involved in implementing these systems. Overcoming these challenges requires proper planning (Reich, B. H., & Benbasat, I., 2000), employee training (Fulantelli, G. & Allegra, M., 2003), and continuous support to ensure successful integration.

Various studies highlight that SMEs adopt IT based on factors like perceived benefits, organizational readiness, external pressure, and the availability of technical infrastructure. The Technology-Organization-Environment (TOE) framework (Tornatzky, L., & Fleischer, M., 1990) is often used to explain these adoption patterns. Researches by (Thong, 1999) and (Kapurubandara, M., & Lawson, R., 2006) found that SMEs are more likely to adopt IT when they perceive it as a competitive advantage, and when there is external pressure from customers or competitors. They argue that contextual variables such as organizational characteristics, decision-maker characteristics, information system characteristics and environmental characteristics

are main determinants of information system implementation in small businesses. Based on systematic literature reviewed by (Yuwono, T., Suroso, A. & Novandari, W., 2024) there are few empirical studies focused in developing countries, including Albania (Angjeli, G., Pano, N. & Lacka, S., 2022), (Tole, Dh., Pano, N. & Gjika, I., 2019). This research paper aims to contribute to this context.

### 3. Methodology

The research design process addresses a number of philosophical questions regarding what kind of evidence should be collected, from where, and how such evidence should be interpreted in order to provide appropriate answers to the main research question. As highlighted by (Easterby-Smith, M., Jaspersen, J.L., Thorpe, R. & Valizade, D., 2021), (Sharp, H., Preece, J. & Rogers, Y., 2019) and (Holden, M. & Lynch, P., 2004), there are two main approaches in the debate concerning the appropriate philosophies from which research methods should be derived. These philosophies relate to phenomenology and the positivist approach. The research work presented in this paper is based on the phenomenological approach, which is more focused on qualitative data and is concerned with individuals' perspectives, sensitivity to processes, and detailed case study research.

This research study focuses on SMEs since the economic operators in Albania are predominantly comprised of small and medium-sized enterprises. The aim of this research is to identify the level of use of integrated information systems, to define and develop potential tools with the objective of increasing the effectiveness of the use of information systems for better performance of managerial processes in Albanian SMEs. Encouraging and supporting Albanian SMEs in the use of integrated information systems and technology would contribute to enhancing their competitive capabilities. To achieve this objective, a scientific research strategy was established, which consists of practical applications and is therefore structured based on case studies.

The case studies are composed of the following parts:

*Descriptive:* This part enables the description of the specific characteristics of the industry in which the enterprise operates, as well as the current managerial and organizational aspects and practices of each enterprise.

*Illustrative:* This section aims to present alternative techniques and practices that could potentially be applied by the economic units included in the case study sample.

*Experimental:* This part outlines the contributions of the research team to further develop and/or integrate information systems, where possible and agreed upon, based on the level of interest with the firms included in the study sample.

*Explanatory:* By comparing the CANVAS indicator system (Heberle, A. & Löwe, Welf & Gustafsson, Anders & Vorrei, Ö., 2017) and (Sabri, M. O., Al-Qawasmi, Dr. K., Odeh, M. & Aydin, M., 2023) of each firm under study with theoretical models, this section helps to understand and explain what happens in practice regarding the extent to which information systems are used in carrying out managerial functions

and the expected developments from their perspective.

The case study method allows for a deeper understanding of the aspects of the research objective, which is essentially applied in nature. It also enables the use and combination of multiple data sources, including interviews with several individuals. This study was conducted in collaboration with the Albanian Manufacturers Union and for the purposes of this paper, the population consists of small and medium-sized enterprises that are members of this association. The firms included in the studied sample through case studies were selected using a non-probability sampling technique, self-selection sampling. Considering time and resources, financial and human capacities, as well as the applied nature of the study, a group of 12 SMEs was deemed appropriate as the sample size for this research work.

The main objective of this paper is to address the challenges in the “smart” use of information systems applied at the level of each specific firm. This includes agreeing to conduct diagnostic visits to the firm’s premises and collaborating to implement possible concrete improvements in the systems or subsystems to enhance overall managerial performance. In this context, the self-selection sampling technique allows each individual case to express its willingness to be part of the study sample. The process of building the sample consists of two phases: (a) announcing the need for participation in the research within the network of members of the Albanian Manufacturers Union, and (b) collecting data from the firms that expressed their willingness to participate.

The firms including to the research sample are small and medium enterprises referring to the number of employees. 5 out of 12 firms belong to the small size category, (10-50 employees) Referring to the type of the main economic activity, 50% of the case studies involved in the sample belong to the recycling industry (including paper, metals and plastic).

The interviewers developed meetings ‘face to face’ with the company’s main managers. Based on techniques recommended by the literature on research methods (Easterby-Smith, M., Jaspersen, J.L., Thorpe, R. & Valizade, D., 2021), structured interviews for the survey and a semi-structured questionnaire for case studies were adopted. Additionally, an informative interview was used to conduct the case studies, and a special interview technique was used for the survey. Semi-structured and in-depth (or non-standardized) interviews were employed in the qualitative section of the case studies to provide a framework for our discussions. These not only reveal ‘What’ and ‘How’ but also emphasize the exploration of ‘Why’. While structured interviews are used as a tool to identify general patterns in an explanatory study, semi-structured interviews were used to understand the relationships among the variables revealed by our descriptive study. These types of questions were widely used in case studies, aiming to capture as much information as possible about the factors and elements that could explain the behaviour and motivations of managers. This research paper employed practice-based evidence as recommended by (Joyce, K. E., & Cartwright, N., 2020) and (Rahul Dé, 2016).

The interview questionnaire was designed considering the empirical work conducted

by various researchers including the way that IIS facilitate the flow of information between different business units such as finance, production, human resources, and sales by providing a unified data repository and a common interface (Reich, B. H., & Benbasat, I., 2000) to identify that strategic business plans, were found to influence both short and long-term alignment (Fulantelli, G. & Allegra, M., 2003).

#### 4. Empirical Results

As is articulated, the aim of this research is to identify the level of ‘smart’ use of the information system in Albanian SMEs and contributing to increase the efficiency of information technology for better performing managerial processes, within the context of Albania. The empirical work framework is approached on the experiences presented by (Rahul Dé, 2016) “Think big and enjoy the baby steps to success”.

In this context, a short general questionnaire has been addressed initially, which intended to gather information on the types of information technology used by them. The aggregated data on the information technology types found and distributed among cases are presented in the Figure 1, which indicate that all the firms involved as case studies employed the accounting information systems and have websites for their businesses. Most of them are using social media (such as Facebook, Instagram, and Tweeter) and in moderation are using the Cloud-based system, but only 36.4 % of them are using CRM.

**Figure 1:** Information technology types and distribution among cases



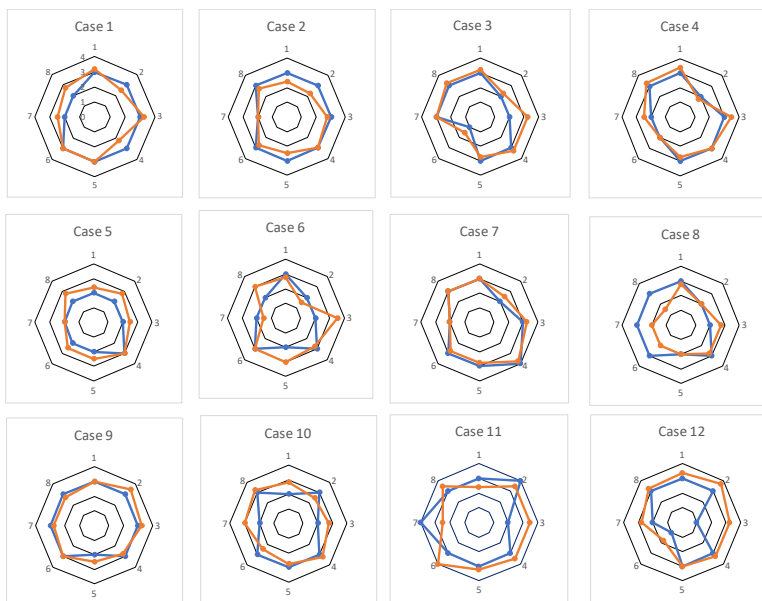
**Source:** Authors, empirical work

In order to assess the level of information technology usage and the extent of ICT integration in managerial activities, a collected database was enabled through the interview questionnaire, which was designed as matrix. The questionnaire consisted of eight main parts which included key areas of the managerial responsibilities. Each of them enabled to collect information in two pillars: the perception of managers regarding the level of IT usage for each aspect, as well as; the assessment of the specific situation through a set of questions (composed of 4 questions) where each of them was evaluated at 4 (four) levels to assess the extent of digitalization of

specific managerial processes. The interviews were conducted with participation of researchers and the managers responsible for each area in the premises of each firm involved as case studies.

A summarizing of the collected information is presented in the Figure 2, in which the blue line indicates the level of perception of relevant managers regarding 8 key areas. These areas include assessment of the level of software usage in each organization in terms of financial management; automation and digitalisation of the systems used in production management; logistics and warehouse management; sales management; marketing management; investments and projects; digitalization of your organization in human resources management; performance assessment of the organization. In the graphs those are presented by the numbers from 1-8 per each case. Whereas the red line represents the aggregated assessment for each managerial field, based on the corresponding set of questions, where each of them enabled the measurement of the level of usage of integrated information systems.

**Figure 2:** Manager's perceptions *vs* assessments across the cases



*Source:* Authors, empirical work

## 5. Discussion

The adoption of IIS by SMEs in Albania is evolving, but the overall penetration remains relatively low compared to more developed economies. While there has been growing awareness of the benefits of these systems, challenges related to cost, digital literacy, and infrastructure have slowed the widespread implementation.

The methodology used enabled the direct identification of the perception that managers and owners had regarding the level of digitization in each of the areas included in the study through interviews and on-site observation in the workplace. On the other hand, this perception was compared with the findings generated from the specific, detailed questions for each area.

Thus, when evaluating the information systems for financial management, it was noted that due to focalization, all businesses had accounting software that primarily fulfilled the preparation of financial information for tax purposes and generated quite a bit of useful data for other managerial systems, such as inventory, sales, costs, etc. While the perception of owners and/or managers was that of a high level of accounting digitalization in their business, when the situation was broken down into specific data, such as cost centres, the product life cycle, real-time digital tracking of goods or raw materials in inventory, they realized that their level was not as high as they initially thought.

In this context, based on the preliminary diagnosis, all the studied enterprises were divided into two groups: the first group included those enterprises where the perception of digitalization was higher than the actual level, as measured by concrete data, and the second group consisted of those who were aware that they had much work to do for digitalization, as their perception was lower than the measured level. This part of the diagnosis made it possible to identify those businesses with a more realistic understanding of digitalization by including three year investment plans and were consistently investing in building programs to generate the most accurate and necessary data for their decision-making. These were primarily enterprises with new machinery and partnerships with European companies in the same sector.

In the other group of businesses, two main problems were identified, especially in the digitalization of the production process. Since investments had been made in parts, according to the requirements or contracts they had at different stages, the unification of production and the communication between machines or between departments was very difficult. On the other hand, some businesses, seeking to transition to a closed cycle, were forced to import raw materials due to the lack of sufficient local supply. This led to differences in quality compared to locally produced materials, and the machines operated with varying efficiencies.

Furthermore, the diagnostic phase was of interest to businesses for two other elements. The first was related to the analysis of their websites, examining not only functional elements but also architectural ones, and making concrete suggestions for their improvement. The other element pertained to the assessment and development of the workforce. All businesses were advised to measure employee satisfaction in the workplace, as they generally considered it beneficial, but none had conducted such an assessment. The recommendation was that by analysing the results of this test, employees could become more motivated to advance in the workplace and, above all, to increase work productivity. Through the presentation of some of the study's findings, it is emphasized how vital it is for both businesses and policymakers to understand that transitioning to the larger European market. The sooner businesses

and all other stakeholders become aware of this, the easier it will be for them to interact and prepare to face the costs of integration into the European market.

## 6. Conclusion

The adoption of Integrated Information Systems by Albanian SMEs is gradually transforming the business landscape, contributing to economic growth, job creation, digital inclusion, and environmental sustainability. However, challenges such as the digital division, job displacement, and data security concerns must be addressed to maximize the societal benefits and ensure that all sectors of society can participate in and benefit from the digital economy. By fostering the right policy environment and addressing the barriers to IIS implementation, Albania can leverage the potential of SMEs to drive broader societal progress. Government, financial institutions, and international organizations need to collaborate to provide financial support, training, and infrastructure development to overcome these challenges. As SMEs continue to adapt to global technological trends, the adoption of IIS will become increasingly critical to their survival and growth in the global market.

Overall, the smart use of information systems by SMEs, driven by research and innovation, can lead to significant positive societal impacts. These ranges from economic benefits and regional development to increased social inclusion and environmental sustainability. The ripple effects of these advancements contribute to a more robust, equitable, and dynamic society.

### **Future Directions and Research Gaps**

While the existing literature provides valuable insights into the challenges and benefits of IIS adoption in SMEs, further research is needed to explore the long-term impact of IIS on SME growth and competitiveness in Albania. Additionally, more case studies on successful adoption strategies, particularly in specific sectors, can provide SMEs with practical roadmaps for integrating IIS into their operations.

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