



THE IMPACT OF PROCESS AUTOMATION ON MANAGEMENT CONTROL AND THE PERFORMANCE OF TOURISM COMPANIES: A BIBLIOMETRIC ANALYSIS

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Abstract: In today's increasingly competitive and digitalized tourism environment, companies face complex challenges in managing resources, optimizing spending and keeping customers satisfied. Process automation is a strategic response to these challenges, optimizing operational efficiency and minimizing margins for error. In this context, management control, an essential element of organizational performance, takes full advantage of automation, in particular by optimizing data collection and analysis. However, although automation offers undeniable opportunities, its impact on the performance of tourism companies has not yet been systematically studied. The aim of this study is to analyse the impact of automation on management control and the performance of tourism companies through a bibliometric analysis of scientific research publication trends.

Keywords: Bibliometric analysis, management control, performance, automation, tourism companies.

1. INTRODUCTION

The tourism industry, known for its dynamic and rapidly changing environment (Brown & al., 2020), is increasingly leveraging technological advancements to enhance operational efficiency and business performance (Buckley, 2011). Among these advancements, (Asadullah & Raza, 2016) process automation has emerged as a critical driver of transformation. Process automation (Gasser & Westhoff, 2012) refers to the use of technology to streamline and perform repetitive tasks (Tussyadiah, 2020), such as customer service, booking management, and data processing, that were once handled manually. By automating these tasks, (Ivanov, 2020) tourism companies can reduce operational costs, improve accuracy, and enhance productivity. However, the widespread adoption of automation in this sector raises important questions

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regarding its impact on management control systems and overall company performance (SISSAH & Hmioui, 2025).

The effects of process automation extend beyond operational improvements (Ivanov, 2020) to significantly influence management control systems. Traditional management control methods (Fordyce & al., 1986), often reliant on manual reporting and oversight, are evolving to accommodate real-time data processing and automated decision-making. This evolution (Langfield, 1997) makes it possible to measure company performance, allocate resources efficiently and, of course, stay abreast of market trends. As a result, (Sissah & Hmioui, 2025) managers are empowered with better tools to oversee performance, ensure quality control, and make strategic decisions that drive business growth.

Moreover, the adoption of automation in tourism companies (Buhalis, 2019) enhances customer satisfaction by improving the quality of services offered. Automated systems (Ivanov, 2020) can also offer personalized experiences. This, of course, can (Buhalis, 2019) enhance the company's reputation and improve its competitive position in the market relative to its competitors (Santos & al., 2020).

However, while process automation offers numerous advantages, it also presents challenges that need addressing. (Llale & al., 2020) The integration of automation requires significant investments in technology, training, and system maintenance. Furthermore, (Ivanov & Webster, 2019) tourism companies must carefully balance automation with the human touch, ensuring that customer relationships and personalized services are not lost in the pursuit of efficiency. With this in mind, it becomes essential to ask the following question: To what extent does the integration of automation in management control processes help improve tourism performance? In order to answer this question, we adopt a bibliometric analysis of the literature, utilizing the SCOPUS database and focusing specifically on scientific articles related to the subject.

2. LITERATURE REVIEW

The impact of process automation on management control and performance in tourism companies is a growing area of interest (Siguencia & Halemba, 2019); especially as digital technologies continue to evolve. Process automation significantly optimizes management control systems, which are essential for guiding, supervising and assessing business operations. Automation enables seamless monitoring of performance measurement (Lane & Stone, 2006) indicators within tourism businesses, such as customer satisfaction rates. It also keeps all data up-to-date, enabling managers to act and make decisions quickly. Furthermore, (Bright, 1958) automation enables tasks to be carried out and completed rapidly, minimizing errors and fluctuations in the service provided.

Another advantage of automation is its ability to simplify and streamline data collection and review, saving time on one hand, and keeping reports up to date on the other. Therefore, thanks to automation, (Mohamed & al., 2022) managers can deal with problems more effectively, keeping staff costs under control and reducing the need for human intervention.

The performance of tourism companies (Corne & Peypoch, 2020), in terms of profitability, customer satisfaction, and operational efficiency, is also positively impacted by automation. Automated processes (Wu & al., 2023) reduce the time needed for routine tasks, such as booking, payment processing, and customer communication, improving overall operational efficiency. (Buhalis, 2019) This efficiency enables tourism businesses to be effective and efficient, (Garavaglia, 2009) optimizing the use of resources and enhancing the customer experience with personalized offers based on data collected using digitalized tools.

Moreover, automation facilitates decision-making based on data collected with the help of digitalized tools (Garces & al., 2023) that are capable of predicting changes in customer behaviour, enabling tourism companies to modify their pricing strategies and adjust them in response to demand.

(Siguencia & Halemba, 2019) examine how automated tools can effectively manage tourism services, and they also stress the importance of communication between industry stakeholders in order to benefit from the positive influence of this automation.

Another significant study by (Buhalis, 2019) explores the broader impact of technology on the tourism industry, including how it affects management control and performance. The paper discusses how technological innovations connect tourism stakeholders, enabling co-created value for travelers across all travel stages. (Sinulingga & al., 2024) It predicts that Ambient Intelligence (AmI) Tourism will drive future industry transformations, reshaping structures, processes, and practices, which in turn influences service innovation, strategy, management, marketing, and competitiveness.

Furthermore, (Ivanov & al., 2017) delve into the challenges faced by tourism and hospitality companies when adopting service automation and robots. Their paper examines the implications of automation across various sectors within the industry, providing insights into how these technologies might affect management control and company performance.

These studies collectively suggest that process automation significantly impacts management control and performance in tourism companies by necessitating new communication strategies, enabling co-creation of value, and presenting challenges in adoption and implementation.

However, the initial investment (Domowitz & Steil, 1999) required to implement automated systems can be significant, both in terms of financial cost and time, especially for small tourism businesses. Also, employees (Breton & Bossé, 2002) need training to adapt to the new automated tools, which also requires high training-related costs. Another disadvantage is the risk associated with cybersecurity issues. Indeed, if companies are interested in using automated tools, they need to be aware of security systems to avoid data breaches or cyber-attacks.

In brief, (Vochozka & al., 2020) automation enhances the management control process to improve the performance of tourism businesses by improving decision-making, increasing customer satisfaction and reducing the time spent on tasks performed by managers. However, implementing these automated tools requires massive investment, as do the costs of training staff to keep up to date with the new system, and the risks associated with cybersecurity.

3. DATA AND METHODOLOGY

In this research paper, we analyze articles that discuss the impact of the automation of management control on tourism performance. To collect the necessary data, we utilized the Scopus database, searching for articles, abstracts, and keywords that include the three key terms relevant to our study: management control, tourism performance, and automation. The initial search yielded 25,075 documents related to this topic.

Following the data collection, we began filtering the results to focus exclusively on research within the disciplines of Business, Management, and Accounting, as well as Economics, Econometrics, and Finance, as these are the core areas of interest for our research. Additionally, to account for temporal relevance, we excluded any articles published in 2025, thus eliminating the potential bias of time. Furthermore, we restricted our search to open-access documents to ensure accessibility and transparency. After applying these filters, the final dataset consisted of 181 articles.

The retrieval procedure used for this study was as follows: (TITLE-ABS-KEY (management AND control) AND TITLE-ABS-KEY (tourism AND performance) OR TITLE-ABS-KEY (automation)) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON")) AND (EXCLUDE (PUBYEAR , 2025)) AND (LIMIT-TO (OA , "all"))

The selected articles will be analysed using VOSviewer, a software tool for visualizing bibliometric networks.

4. RESULTS AND DISCUSSION

4.1. Evolving Research Trends in the Automation of Management Control and Tourism Performance

The figure shows the trend in the publication of scientific articles on the subject of automation, management control and tourism performance. The results show a fluctuating curve, with ups and downs in the number of articles published. The year 2024 showed a remarkable drop compared to previous years, which could indicate a temporary slowdown in interest in the subject (Otley, 2003). Analysis of the curve also shows that the first article published on this subject dates back to (Bailey Jr & al., 1982), marking the beginning of research in this specific field.

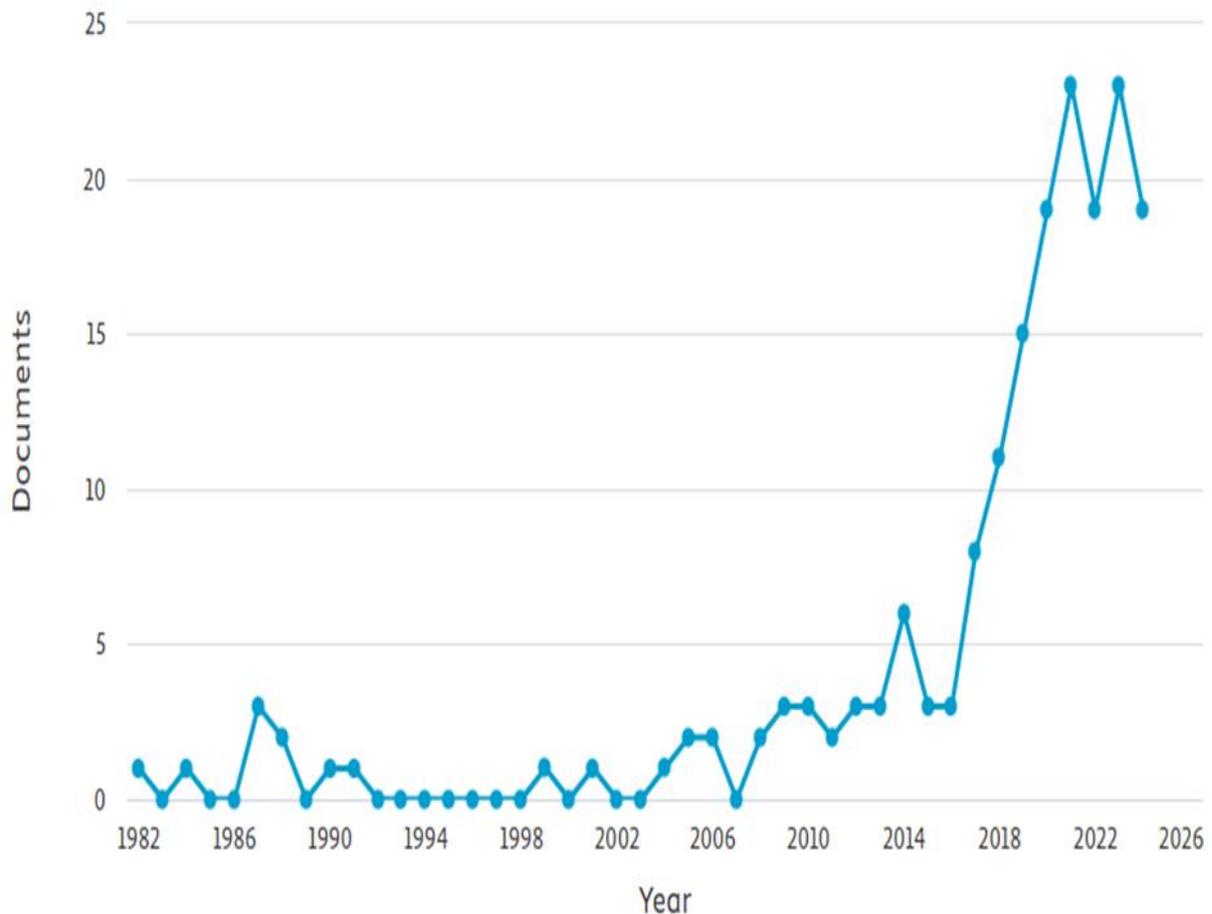


Figure 1. Publication trend

4.2. Most Influential Authors in the Field of Management Control Automation and Tourism

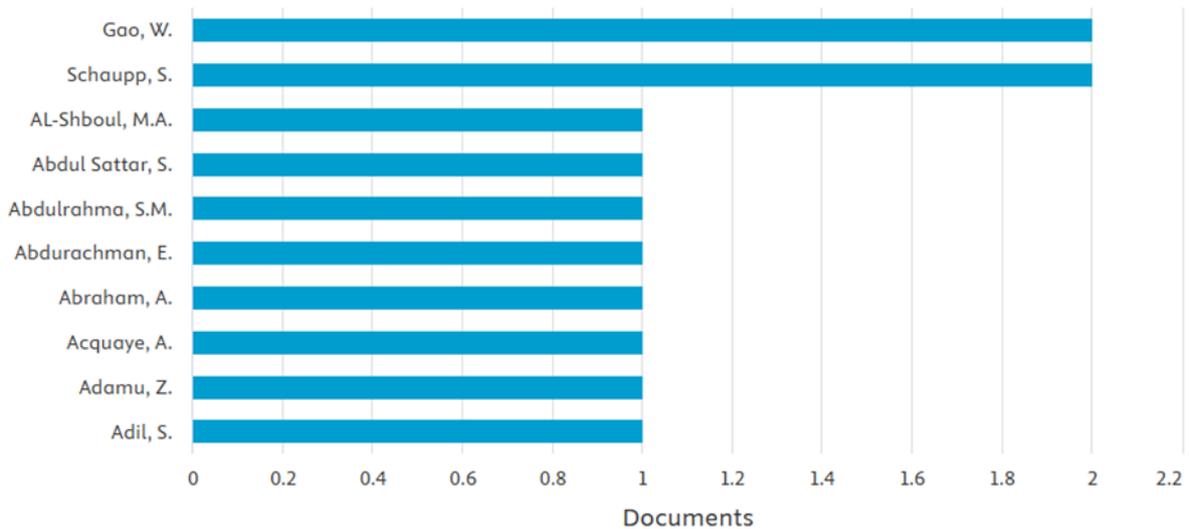


Figure 2. Most productive authors

The figure shows the most productive authors in terms of scientific publications on this topic according to data collected from the Scopus database. The results reveal that the majority of authors have published between one and two articles indexed in Scopus, indicating that the number of highly productive authors in this field remains relatively low. This could suggest (Asadullah & Raza, 2016) that research in this field is still emerging, or that researchers interest in the subject remains relatively concentrated on a small group of authors.

4.3. Country-Specific Contributions to the Automation of Management Control in Tourism

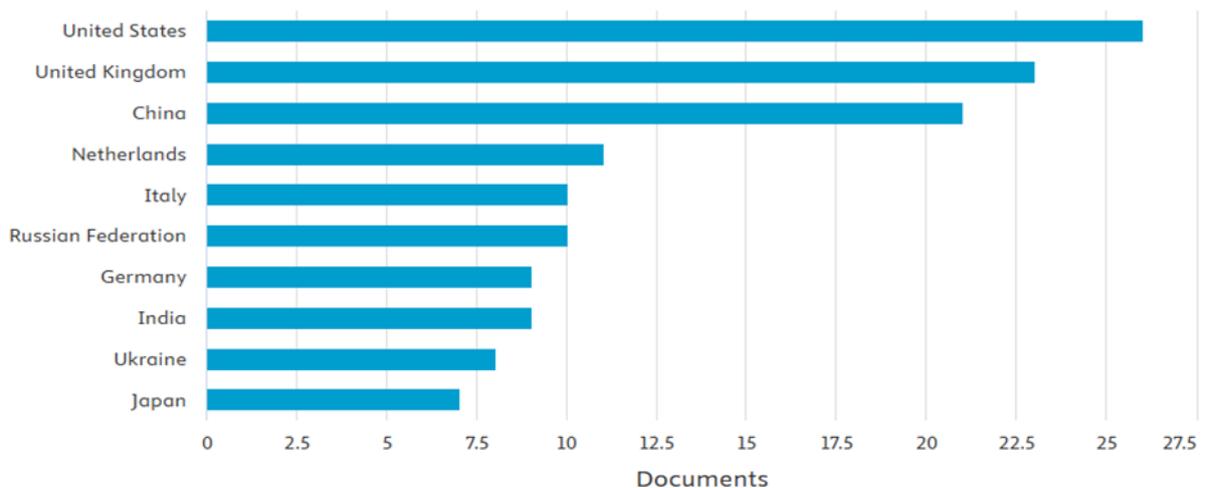


Figure 3. Most productive countries

The figure shows the most productive countries in terms of scientific publications on this theme. The results show that the USA is the leading country in this field, with 26 articles published, followed by the UK with 23 articles. China is in joint third place with 21 publications, while the Netherlands is in fourth place with 11 articles. Other countries, such as Italy and Russia, share fifth place with 10 articles each. Germany and India follow with 9 publications, and Ukraine has 8 articles. Finally, Japan is one of the most productive countries, with 7 publications.

These results suggest that (Flowerdew, 2012) English-speaking countries, in particular the USA and the UK, dominate research in this field, while other nations, notably China and European countries such as the Netherlands, Italy and Russia, also contribute significantly. The geographical diversity of publications shows a growing worldwide interest in management control automation and tourism performance, with notable contributions from Asia, Europe and North America.

4.4. Bibliographic Coupling of Countries

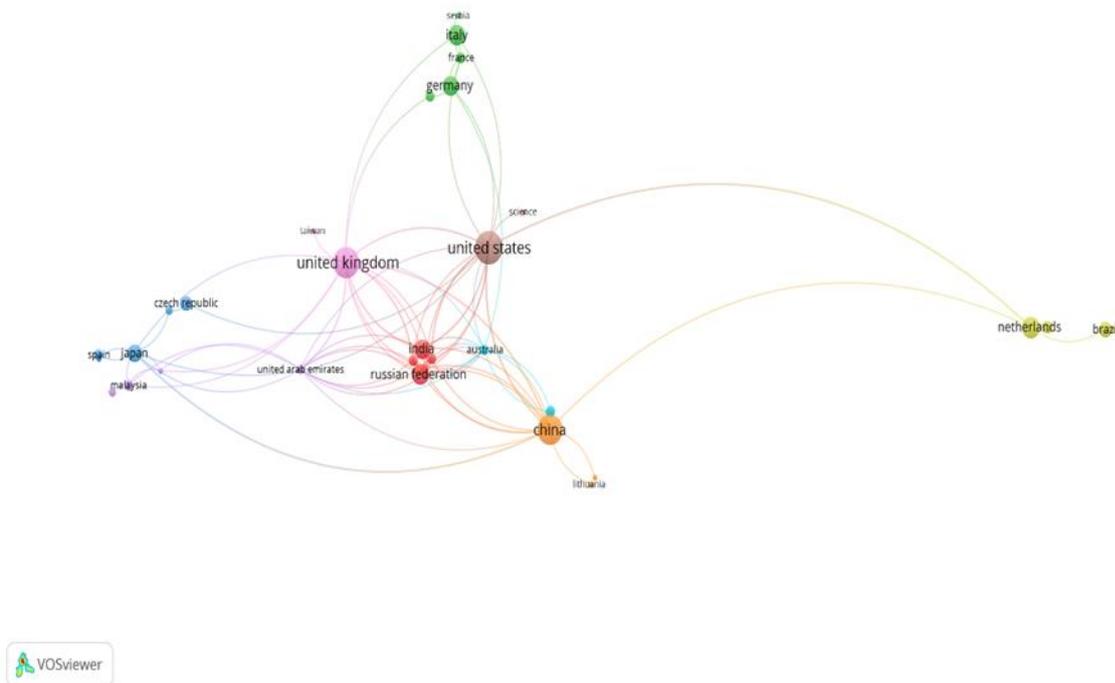


Figure 4. Bibliographic Coupling of Countries

The figure shows the bibliographic links between countries, created using VOSviewer software. The results show 9 different clusters, each represented by a different color. (Donthu & al., 2021) These groups bring together countries that share similar scientific interests and concerns in this field. For instance, countries belonging to the same group may collaborate closely on research related to the impact of automation on tourism performance, or the integration of specific technologies into management control. These bibliographic links (Alsharif & al., 2020) highlight international collaboration networks and help identify regions

since (Bailey Jr & al., 1982) , although fluctuations have been observed over the years, with a notable drop in 2024. This dynamic (Asadullah & Raza, 2016) suggests that research is still developing, with periods of high scientific activity and others marked by a slowdown.

The results concerning the most productive authors and countries show a concentration of research in countries such as the USA, the UK and China, which are among the main contributors to this field (Flowerdew, 2012). This geographical distribution demonstrates a growing global interest in the challenges of automation in the tourism sector, but also the need for international collaboration to tackle complex challenges on a global scale.

The bibliographic (Alsharif & al., 2020) matching of countries revealed by VOSviewer makes it possible to identify clusters of countries that share common scientific interests, thus fostering international collaborations. These clusters underline the dynamics of cooperation in research on issues such as process automation, cybersecurity and risk management in the tourism industry.

Analysis of keyword co-occurrence highlights dominant themes (Donthu & al., 2021) , such as risk management, cybersecurity, process control, intelligent buildings and traffic management. These areas show that automation in the tourism sector is not limited to technical aspects alone, but also encompasses issues relating to safety, operational efficiency and resource optimization. What's more, these keyword clusters offer interesting prospects for the future, by identifying emerging topics that could become hot topics for future research.

In conclusion, the study demonstrates the growing importance of automation in management control and tourism performance (Bright, 1958), as well as the emergence of new challenges and opportunities for researchers and professionals in the sector (Llale & al., 2020). The results also underline the importance of a multi-dimensional approach (Sainaghi & al., 2017), integrating advanced technologies, risk management and safety, to meet the complex needs of modern tourism.

REFERENCES

- Alsharif, A. H., Salleh, N. O. R. Z. M. D., & Baharun, R. O. H. A. I. Z. A. T. (2020). Bibliometric analysis. *Journal of Theoretical and Applied Information Technology*, 98(15), 2948-2962.
- Asadullah, M., & Raza, A. (2016, November). An overview of home automation systems. In 2016 2nd international conference on robotics and artificial intelligence (ICRAI) (pp. 27-31). IEEE.
- Bailey Jr, A. D., Gerlach, J., McAfee, R. P., Whinston, A. B., & Watson, D. J. (1982). OIS Technology and Accounting: Partners in Conflict. In *Data Base Management: Theory and Applications: Proceedings of the NATO Advanced Study Institute held at Estoril, Portugal, June 1–14, 1981* (pp. 275-305). Dordrecht: Springer Netherlands.
- Breton, R., & Bossé, É. (2002, October). The cognitive costs and benefits of automation. In *NATO RTO-HFM Symp: The role of humans in intelligent and automated systems*.
- Bright, J. R. (1958). *Automation and management*. Boston: Division of Research, Graduate School of Business Administration, Harvard University.
- Brown, P., Ly, T., Pham, H., & Sivabalan, P. (2020). Automation and management control in dynamic environments: Managing organisational flexibility and energy efficiency in service sectors. *The British Accounting Review*, 52(2), 100840. <https://doi.org/10.1016/j.bar.2019.100840>
- Buckley, R. (2011). Tourism and environment. *Annual review of environment and resources*, 36(1), 397-416. <https://doi.org/10.1146/annurev-environ-041210-132637>

- Buhalis, D. (2019). Technology in tourism - from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: a perspective article. *Tourism Review*, 75 (1), 262-272. <https://doi.org/10.1108/TR-06-2019-0258>
- Corne, A., & Peypoch, N. (2020). On the determinants of tourism performance. *Annals of Tourism Research*, 85, 103057. <https://doi.org/10.1016/j.annals.2020.103057>
- Domowitz, I., & Steil, B. (1999). Automation, trading costs, and the structure of the securities trading industry. *Brookings-Wharton papers on financial services*, 2, 33-92.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Flowerdew, J. (2012). *English for research publication purposes*. The handbook of English for specific purposes, 301-321. <https://doi.org/10.1002/9781118339855.ch16>
- Fordyce, W. E., Brockway, J. A., Bergman, J. A., & Spengler, D. (1986). Acute back pain: a control-group comparison of behavioral vs traditional management methods. *Journal of behavioral medicine*, 9, 127-140. <https://doi.org/10.1007/BF00848473>
- Garavaglia, J. A. (2009). Full automation in live-electronics: advantages and disadvantages. In Proceedings of the 15th International Conference on Auditory Display, ICAD (pp. 18-22).
- Garces, D., Bhattacharya, S., Gil, S., & Bertsekas, D. (2023, May). Multiagent reinforcement learning for autonomous routing and pickup problem with adaptation to variable demand. In 2023 IEEE International Conference on Robotics and Automation (ICRA) (pp. 3524-3531). IEEE.
- Gasser, T. M., & Westhoff, D. (2012, July). BASt-study: Definitions of automation and legal issues in Germany. In Proceedings of the 2012 road vehicle automation workshop. Automation Workshop.
- Ivanov, S. H., Webster, C., & Berezina, K. (2017). Adoption of robots and service automation by tourism and hospitality companies. *Revista Turismo & Desenvolvimento*, 27(28), 1501-1517. <https://ssrn.com/abstract=2964308>
- Lane, S., & Stone, C. A. (2006). Performance assessment. *Educational measurement*, 4, 387-431.
- Langfield-Smith, K. (1997). Management control systems and strategy: a critical review. *Accounting, Organizations and Society*, 22(2), 207-232. [https://doi.org/10.1016/S0361-3682\(95\)00040-2](https://doi.org/10.1016/S0361-3682(95)00040-2)
- Llale, J., Setati, M., Mavunda, S., Ndlovu, T., Root, D., & Wembe, P. (2020). A review of the advantages and disadvantages of the use of automation and robotics in the construction industry. In *The Construction Industry in the Fourth Industrial Revolution: Proceedings of 11th Construction Industry Development Board (CIDB) Postgraduate Research Conference 11* (pp. 197-204). Springer International Publishing.
- Mohamed, S. A., Mahmoud, M. A., Mahdi, M. N., & Mostafa, S. A. (2022). Improving efficiency and effectiveness of robotic process automation in human resource management. *Sustainability*, 14(7), 3920.
- Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *Profesional de la Información*, 29(1). <https://doi.org/10.3145/epi.2020.ene.03>
- Otley, D. (2003). Management control and performance management: whence and whither?. *The British Accounting Review*, 35(4), 309-326. <https://doi.org/10.1016/j.bar.2003.08.002>

- Sainaghi, R., Phillips, P., & Zavarrone, E. (2017). Performance measurement in tourism firms: A content analytical meta-approach. *Tourism Management*, 59, 36-56. <https://doi.org/10.1016/j.tourman.2016.07.002>
- Santos, F., Pereira, R., & Vasconcelos, J. B. (2020). Toward robotic process automation implementation: an end-to-end perspective. *Business Process Management Journal*, 26(2), 405-420. <https://doi.org/10.1108/BPMJ-12-2018-0380>
- Siguencia, L. O., & Halemba, P. (2019). Automation of management processes. In E3S Web of Conferences (Vol. 132, p. 01020). EDP Sciences. <https://doi.org/10.1051/e3sconf/201913201020>
- Sinulingga, S., Nasution, V. A., Meutia, A., Indra, S., Kesuma, F. T., & Marpaung, J. L. (2024). Automated and Measured Managerial Systems in the Management of Independent Tourism Villages: A Case Study of Parsingguran II Village, Polung Subdistrict, Humbang Hasundutan Regency. *Jurnal Pengabdian Masyarakat Bestari (JPMB)* 3(9), 527-540. <https://doi.org/10.55927/jpmb.v3i9.11334>
- Sissah, S., & Hmioui, A. (2025). Leveraging digitalization for management control and performance - Bibliometric analysis (2013-2023). *Multidisciplinary Reviews*, 8(7), 2025208. <https://doi.org/10.31893/multirev.2025208>
- SISSAH Safae, & Hmioui Aziz. (2025). Mastering Management Control to Optimize SME Performance: A Bibliometric Review. *International Journal of Innovative Science and Research Technology (IJISRT)*, 10(2), 149-155. <https://doi.org/10.5281/zenodo.14891761>
- Tussyadiah, I. (2020). A review of research into automation in tourism: Launching the Annals of Tourism Research Curated Collection on Artificial Intelligence and Robotics in Tourism. *Annals of Tourism Research*, 81, 102883. <https://doi.org/10.1016/j.annals.2020.102883>
- Vochozka, M., Horák, J., & Krulický, T. (2020). Advantages and disadvantages of automated control systems (ACS). In *Digital Age: Chances, Challenges and Future 7* (pp. 416-421). Springer International Publishing. https://doi.org/10.1007/978-3-030-27015-5_50
- Wu, F., Sorokina, N., & Putra, E. D. (2023). Customers satisfaction on robots, artificial intelligence and service automation (RAISA) in the Hotel Industry: A comprehensive review. *Open Journal of Business and Management*, 11(3), 1227-1247. <https://doi.org/10.4236/ojbm.2023.113069>