Revista de Administración y Desarrollo de Proyectos
https://cefuturopdl.org/index.php/adp
2025. Vol. 1(Núm. 1), pág. e202518

Review Article

Key issues in using emerging technologies for project management

Factores relevantes en el uso de tecnologías emergentes para la gestión de proyectos

Sonia Emilia Leyva Ricardo[a], José Armando Pancorbo Sandoval[b],
Leonardo Ernesto Domínguez Díaz[c]

[a] Universidad UTE, Sede Santo Domingo, Ecuador, https://orcid.org/0000-0002-4556-2301, sonia.leyva@ute.edu.ec
[b] Universidad UTE, Sede Santo Domingo, Ecuador, https://orcid.org/0000-0002-8082-6720, jose.pancorbo@ute.edu.ec
[c] Centro de Estudios Futuro; Universidad de Matanzas, Cuba, https://orcid.org/0009-0008-1470-9527, leonardo.ernesto@umcc.cu

Citar como: Leyva Ricardo, S. E., Pancorbo Sandoval, J. A. & Domínguez Díaz, L. E. (2025). Key issues in using emerging technologies for project management. *Revista de Administración y Desarrollo de Proyectos*, *1*(1), e202518.

Recibido: 12/01/2025, **Aceptado:** 20/03/2025, **Publicado:** 13/04/2025

ABSTRACT

Project management has evolved from a manual and fragmented process to a technology-driven discipline. The objective of the research is to value key issues on technologies implementation for project management. It is a descriptive quantitative study, by means of accomplishing a bibliometric analysis performed in the Scopus database in which only articles found in open access were considered. A total of 93 articles were detected. The country with the highest number of studies was China with 21. The author with the most publications was Goncharuk, Y.A. with seven. The affiliation with most studies was Belgorod State University with seven. The articles were published in 34 journals, of which the most cited was Work, Employment and Society with a total of 107. Some of the most used software in project management were detected. In addition, five lines of research derived from the cluster analysis were determined and, consequently, a checklist was designed so as to evaluate technology use in project management.

Keywords: project management; technologies; bibliometric analysis.

RESUMEN

La gestión de proyectos ha evolucionado de ser un proceso manual y fragmentado a una disciplina impulsada por la tecnología. El objetivo de la investigación es valorar factores relevantes sobre la implementación de tecnologías en la gestión de proyectos. El estudio es de tipo cuantitativo descriptivo, mediante la realización de un análisis bibliométrico ejecutado en la base de datos Scopus donde solo se consideraron los artículos que se encontraron en acceso abierto y la sistematización de los aspectos más relevantes para valorar el uso de tecnologías en la gestión de proyectos. Se detectaron un total de 93 artículos. El área temática con el mayor número de investigaciones fue ingeniería con 35. El país con el mayor número de estudios resultó ser China con 21. El autor con más publicaciones fue Goncharuk, Y.A. con siete. La afiliación con más estudios fue Belgorod State University con siete. Los artículos fueron publicados en 34 revistas, de

las cuáles la más citada fue Work, Employment and Society con un total de 107. Se detectaron algunos de los *softwares* más empleados en la gestión de proyectos. Se determinaron cinco líneas de investigación derivadas del análisis clúster y, como consecuencia se propuso una lista de chequeo con los aspectos más importantes para el diagnóstico tecnológico en la gestión de proyectos.

Palabras claves: gestión de proyectos; tecnologías; análisis bibliométrico.

I. Introduction

Technology-intensive and project-driven work has grown exponentially across various industries (Zaman et al., 2020). Technologies have become an indispensable tool for success (Shoushtari et al., 2024; Zaman et al., 2020). From initial planning to execution and follow-up, the benefits offered by technologies contribute to optimizing processes (Neri de Souza et al., 2020), improving collaboration, and increasing the chances of achieving objectives (Wang, 2017). The use of technologies has changed the way projects are planned, executed and monitored (Teslia et al., 2017). In addition, they improve efficiency, decision making (Yerimbetova & Ayapbergenova, 2022) and risk management (Utkin et al., 2000). The successful adoption of technologies in project management requires a well-defined strategy (Teslia et al., 2022) that takes into account aspects such as organizational culture, specific project needs and team skills (Lumseyfai, 2020). Proper training and ongoing support are vital to ensure that technologies are used effectively and their positive impact is maximized (Akindote et al., 2024; Zahorodnia et al., 2024).

The use of technology in project management is vital due to the fact that it allows foreseeing variations and is being able to execute actions promptly to preserve competitive advantage (Cao et al., 2004). Technology adoption in project management is a critical process that can have a crucial impact (Khaliev et al., 2021).

The effective implementation of a given technology in project management can provide a variety of benefits such as automating tasks, reducing errors (Panakal & Medley, 2007). It can also mean great challenges such as the need for adequate training for its management, high level of acquisition and maintenance investment as well as the search for a balance between technology and human labor (Portal Iznaga et al., 2023). A future evaluation of its implementation may need the identification of key issues. Then the objective of this research is to rate key issues on technologies implementation for project management.

II. Materials and Methods

A descriptive mixed study was carried out by means of bibliometric and content analysis with the intention of examining the scientific production related to the use of technologies in project management, as well as identifying trends and relevant topics on this field. Texts were searched in Scopus Database in the period between 1981 to 2023.

The search strategy was: (TITLE-ABS-KEY ("project management technologies")). The search was executed on June 4, 2024, and a sum of 95 publications was reached. The preliminary scan was performed by one of the researchers, who checked the title and abstract, resulting in two eliminated documents which were not directly related to the purpose of this research. The selected documents were reviewed as a whole and the main issues related to technology´s role into project management were extracted. Figure 1 shows PRISMA based methodology.

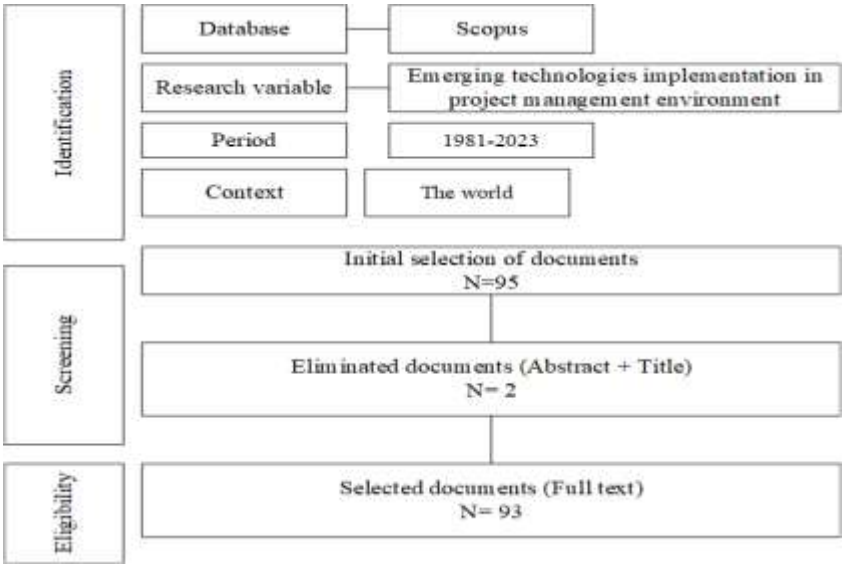

Figure 1. PRISMA based methodology for documents selection
Source: own design

For bibliometric analysis, the following indicators were studied:

Indicators were considered to analyze scientific production in the selected stage:

- Trend indicator to study the number of researches carried out per year.
- Determination of the primary areas of knowledge in which research was carried out, taking into account quantity levels.

Impact indicators were evaluated at the stage:

- Authors who contributed the most articles in the period.
- Institutions with more studies which contributed to the area of knowledge.
- Number of contributions provided by country.
- Types of documents.
- Main scientific journals: where the total number of citations received, h-index, SCImago SJR Rank (SJR indicator) and quartile were taken into account.
- For quantitative analysis of the indicators, the .CSV format files were downloaded from the Scopus database (https://www.scopus.com/), while the components linked to the impact and affiliation of the journals were acquired from the SCImago Journal Tank, Sci Journal (https://www.scijournal.org/).

Bibliometric maps were prepared for the analysis of word co-occurrence, co-authorship among researchers and for the identification of research lines. Some of the most commonly used software in project management were also identified. Based on content review, a checklist for technological diagnosis in project management was designed.

III. Results and Discussion

Figure 2 shows the behavior of the number of publications per year and research studies carried out by subject area.

There is a linear trend of an increase over the years. The years with the highest number of research studies are 2022, 2010 and 2021 with 11, nine (9) and eight (8) in that order. In 1982, 1983, 1985, 1987, 1987, 1989, 1990, 1990, 1992, 1994, 1996, 1996, 1997, 1998, 2001, 2002, 2003 and 2015 there were no publications. As for thematic studies, they were carried out in 20 areas, predominantly engineering with 35, computer science with 26 and business, management and accounting with 19.

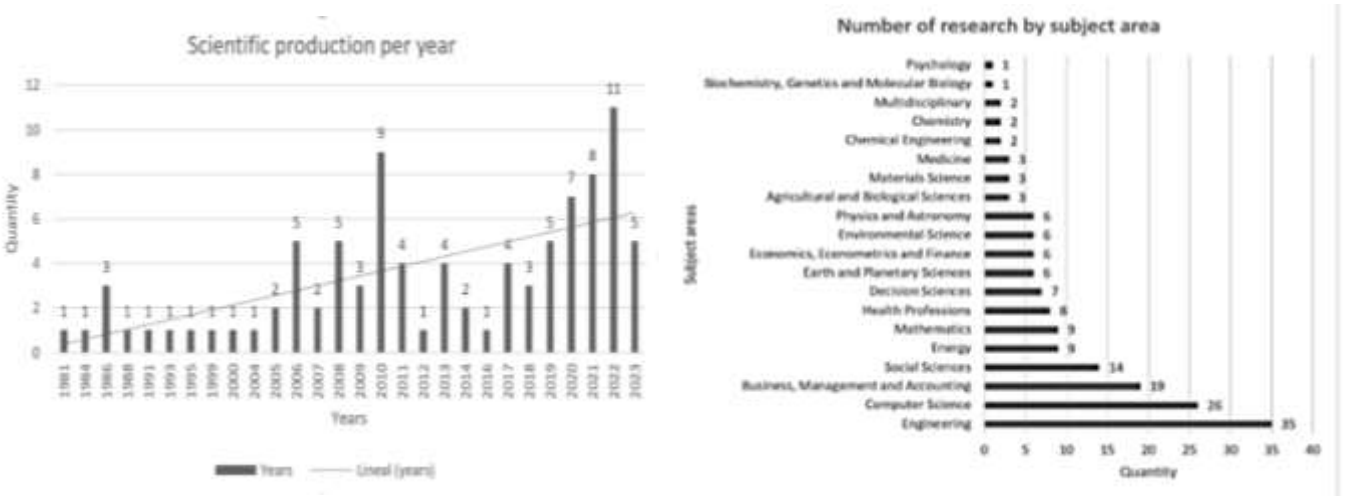

Figure 2. Number of publications per year and researched subject area
Source: own design

Conference papers are the most frequent types of documents, representing a 50,53 % of the total (93), and scientific articles represent a 40,86 %. The most prominent authors account for 19 publications (Goncharuk, Y. A. with seven articles, Goncharuk, S. V. with six and Babintsev, V. P. and Teslia, I., both with three publications), while only 14 authors have two (2) or more studies out of a total of 159, which represents an 8,80 %; this authorship illustrates a high concentration of research productivity, which was aligned to countries with the highest number of studies (59,13 % of the total), such as China (21), The Russian Federation (17) and The United States (17).

The bibliometric map was made to check the levels of co-authorship and keywords co-occurrence (Figure 3). The maximum number of authors per document was 25, six (6) items linked in two (2) clusters were obtained.

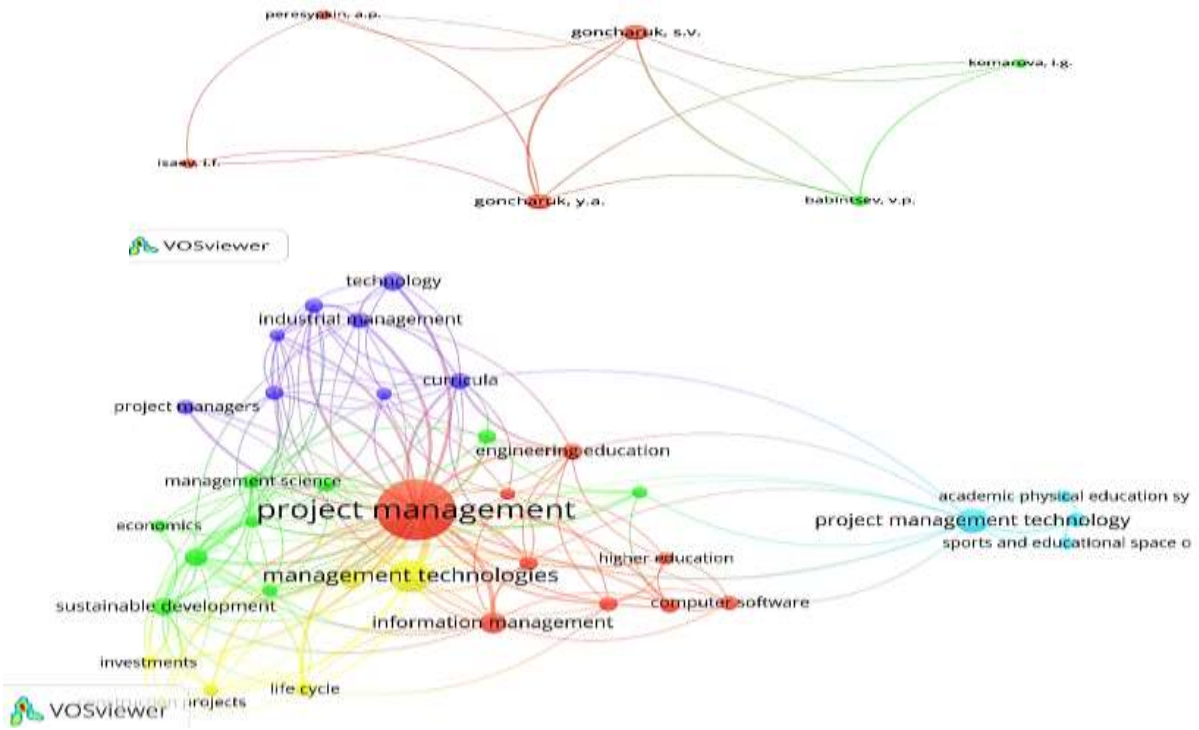

Figure 3. Network maps of author co-authorship and co-occurrence
Source: own design

The affiliation with the most studies was Belgorod State University with seven (7), followed by The University of Manchester, Beihang University, Taras Shevchenko National University of Kyiv and Cherkasy State Technological University with three (3). These five (5) centers were the only ones with at least 3 publications, representing 3,84 % of the total (130).

As for co-occurrence of keywords, based on a frequency n=3, 36 items and links were found which are grouped into five (5) clusters as follows:

Cluster 1 Computer software, decision making, engineering education, higher education, information management, information systems, project management, software design, software engineering.

Cluster 2 Construction industry, economic and social effects, economics, industry, innovation, management science, research and development management, risk management, sustainable development.

Cluster 3 Computer networks, computer simulation, curricula, industrial management, project managers, societies and institutions, technology, technology managements.

Cluster 4 Construction project management, construction projects, human resource management, investments, life cycle, management technologies.

Cluster 5 Academic physical education system, dispositions, project management technology, sports and educational space in universities.

When analysing clusters and literature, five (5) lines of research arise from the analysis:

1. Optimization of the decision-making process (Li et al., 2008) in software engineering through the use of information systems and project management tools in higher education (Goncharuk et al., 2022). Sarmiento García et al. (2024) refers to the application of the Project Management Institute methodology to enhance the experiences of teachers, students, and the academic community in the stages of planning, executing, monitoring, and completion of the school cycle in a manner that is both efficient and effective, through the amalgamation of procedural guidelines, knowledge areas, and stakeholders involved in project management methodologies. Furthermore, it encourages ongoing formative evaluation through indicators related to proposed activities and their actual durations, which results in the establishment of quality criteria for monitoring and controlling tools.
2. Implementation of innovation and risk management (Potapkina et al., 2022) in sustainable management in the construction industry (Zhou, 2010). Ensuring the sustainability of construction project is associated with the uses of risk-based methods within project management, hence Tsopa et al. (2021) argue that is conditioned by managerial solutions regarding reserves provisions in order to mitigate risk factors; definition of quality terms and timing of projects, and financial decisions. The combination of smart technologies, has become the disruptive approach to improve sustainability in project management, particularly in green construction projects (Lawal et al., 2024); nevertheless, for complex construction projects safety risks increase thus affecting performance, even the use of certain technologies could be counterproductive (Ghaleb et al., 2022).
3. Integration of computational simulation in project management (Teslia et al., 2017; Zaman et al., 2020; Dabirian et al., 2021;). Filippetto et al. (2021) introduce a similarity-based analysis of context histories for project risk prediction and refers that, despite PMI allegiance in low use of risk management in IT companies, projects that use risk management can identify 70 % of risks and avoid 90 % of them; hence, when finding information in similar projects is challenging due to comparison models and a lack of structured information ontology approach would be used to recommend risks based on project characteristics and context similarities, through evaluating best practices for all stages, calculating project similarity for risk identification, and using activity theory for risk categorization and identification.
4. Optimization of human resource management in construction projects (Karmazina et al., 2014; Shi et al., 2005). Lean based technologies are proven to be very effective; considering that construction projects have been relatively static in its processes, new methods and tools adoption have become necessary to increase productivity and efficiency levels (Estrada Herrera & Pueblita Mares, 2023). Technology has been used for predicting labour congestion as a driver of productivity and efficiency (Dabirian et al., 2021).

5. Optimization of universities sports-educational space (Polukhin et al., 2020) through the integration of project management technologies. Babintsev et al. (2022) case study on an academic physical education system resulted in clear drawbacks identification in the existing institutional mechanisms limiting the management process, mainly founded by student community, unsatisfaction with the limited choice of sports, competitions and remote locations of the university sports facilities, etc. This means that the academic physical education system community shows an implicit demand for reforms in the system management methods. Therefor authors refer that these reforms could be facilitated by modern project management technology, which is based on clear benefits in combination of provisions for the academic learning with practical professional progress, prioritization and individualization of the physical education service and potential cooperation in the project teams with leaders from a wide range of institutions.

The articles were published in 34 journals, where *Teoriya i Praktika Fizicheskoy Kultury* stands out with seven (7) studies Table 1 shows the list of the most cited and influencial journals in this context.

Table 1. Most cited journals

Journals	Cites	h-index	SJR	Quartiles
Work, Employment and Society	107	40	2,135	Q1
R&D Management	69	119	1,756	Q1
International Journal of Managing Projects in Business	40	48	0,757	Q2
Journal of Management Information and Decision Sciences	18	15	0,277	Q3
Journal of Open Innovation: Technology, Market, and Complexity	18	50	0,905	Q1
Journal of Healthcare Engineering	11	57	0,509	Q3
Computer Integrated Manufacturing Systems	10	0	0,365	Q2
EMJ - Engineering Management Journal	9	44	0,492	Q2
Eastern-European Journal of Enterprise Technologies	8	36	0,288	Q3
Journal of Technology Management and Innovation	7	35	0,202	Q4

Source: own design

This list of 10 journals is led by Work, Employment and Society with the highest SJR (2,135). The journal with the highest h-index is R&D Management with 119. The article with the highest number of citations is: “Controlling the uncontrollable: 'Agile' teams and illusions of autonomy in creative work” with 107. This is precisely linked to agility caused by software development and application in organizations, particularly project management (Dong et al., 2024).
Some of the most commonly used software for project management (Table 2) are Zoho Project **(**Ivan & Munggana, 2013), Jira (Arnautović, 2022), Teamwork (Strode et al., 2022), Business map (Yudiono, 2020), Asana (Ferreira Marques & Bernardino, 2019) and Project Manager (Procacciono & Verner, 2006).

Table 2. Software used in Project management.

Software	Brief description	Main tolos
Zoho Project	Enables Project, team and task management.	Task lines and timesheets, calendar modules, Budget management, resource utilization and customized reports.
Jira	It allows you to map tasks, prioritize, delegate, generate graphs and reports and optimize work processes in a simple way.	Scrum dashboards, roadmaps, agile reporting, process automation and fault management.
Teamwork	Provides an intuitive user interface. Allows keeping tasks up to date, time estimation and detects bottlenecks in the process.	Workload and capacity management, Kanban board, task calendar, budget management and profitability reports.
Business map	Provides visibility into projects, connects planning and execution to help teams deliver faster.	Project timeline, Kanban boards, workflow automation, Project forecasting, automated reporting, powerful analytics module.
Asana	It allows you to set priorities and deadlines, share details and assign tasks. It is highly customizable.	Automatic email updates, creation of calendars, Project sections, search views, list and task tracking views.
Project Manager	Offers several alternatives for task and project management. It combines project planning tasks and scheduling tools.	Real-time dashboard, Gantt chart, task and workload management, scheduling, project reports, timesheets.

Source: own design

The use of software in Project Management reinforces optimization in decision making, work management, agility and preventing and reducing risk, which are issues related in previous bibliometric analysis. Artificial Intelligence is interconnected with software tools (Crawford et al., 2023; Camastra & González Vallejo, 2025) and used to accelerate these outcomes. Therefor AI helps into key projects development and management tasks and decisions such as determining the amount of work to be done or planned, identifying immediate actions, improving response time, increasing capacity, productivity and value for the organization (Dong et al., 2024).

Building Information Modeling (BIM) has emerged as a highly recognized and widely adopted tool over the past decade. In the construction industry, BIM functions as a management approach can be applied consistently to achieve information management across the entire building life cycle. By integrating building data and information and facilitating its sharing throughout the life cycle, project stakeholders can effectively and efficiently comprehend and process various aspects of building information (Wang & Chen, 2023).

Derived from previous analysis, a checklist was prepared for the technological diagnosis in project management, comprising of 10 items related to technological tools and software.

- Does the organization have a Project management system and/or specific technological tools for project planning and monitoring?
- Is the Project management software properly use, that allows task assignment, time and resource tracking, and reporting?
- Have online collaboration tools been implemented to facilitate communication and coordination among project team members?
- Does the organization have a document management system that makes it possible to store and share relevant project information in a secure and accessible way?
- Are time and productivity management tools used to optimize the planning and execution of project activities?
- Have risk management tools been implemented to facilitate the identification, assessment and mitigation of potential project risks?
- Does the organization have data visualization tools to monitor project progress and performance in real time?
- Have financial management tools been integrated to control project costs and budgets?

- Does the organization use quality management tools to ensure that projects comply with established standards and requirements?
- Is an assessment of the organization´s Project management technology needs conducted on a regular basis and its improvements implemented based on the obtained results?

A bibliometric analysis was carried out to evaluate relevant topics related to technologies in project management from 1981 to 2023, where research in various thematic areas, mostly in the area of engineering, can be perceived. The institution that contributed the most studies was Belgorod State University with seven (7). The country with the most contributions was China, which is in agreement with another research (Colombo & de Angelis, 2021) that recognizes this country as one of the world's largest producers.

Bibliometric studies have been used in different contexts (Domínguez-Díaz et al., 2024; Sánchez Suárez, Pérez Gamboa, et al., 2023; Sánchez Suárez, Trujillo García, et al., 2023; Sarmentero Bon et al., 2022; Shi & Antwi-Afari, 2023) to organize different indicators of science and identify lines of research (Ledesma & Malave González, 2022). Checklists have been used in different sectors such as medicine (Galindo Vázquez et al., 2013; Oscanoa, 2013), to evaluate strategic planning (Medina Enríquez & Crespo Rodríguez, 2019), to reduce risks in competency-based management (Nápoles Villa & Marrero Fornaris, 2023) and to manage inventories (Medina Enríquez et al., 2022). There is a great diversity of research that describes the application of technologies in industries with great benefits (Głodziński & Szymborski, 2019).

IV. Conclusions

The study exhibits a growing connotation of technology in project management, considering research published each year, regions involved and a variety of disciplines and areas covered. Authors have reported common benefits on optimizing decision-making and human resources management processes, as well as integrating simulation tools, innovation and risk management, these two latter associated to sustainability.

One of the restrictions of the research is that it was only executed in Scopus database (its generalizability would be highlighted by using other impact databases such as Web of Science, Sciencedirect, Pubmed, or Scielo, together with valuable comparative analyses among them. In addition, other indicators were not taken into account in this research, such as the country of origin of the journals, Prince index, analysis of collaboration between institutions or countries, number of journals discontinued in the database due to lower quality standards.

Among the positive aspects of the research, the analysis of the scientific production on technologies in project management through the use of different bibliometric indicators stands out, as well as the determination of research lines that serve as a basis for future directions and items to be evaluated through a checklist.

V. Bibliographic references

Akindote, O. J., Adegbite, A. O., Omotosho, A., Anyanwu, A. & Maduka, C. P. (2024). Evaluating the effectiveness of IT project management in healthcare digitalization: a review. *International Medical Science Research Journal*, *4*(1), 37-50. https://doi.org/10.51594/imsrj.v4i1.698

Arnautović, A. (2022). Managing Project Using JIRA Software. *Serbian Journal of Engineering Management*, *7*(2), 40-46. https://doi.org/10.5937/SJEM2202040A

Babintsev, V. P., Goncharuk, S. V., Peresypkin, A. P. & Goncharuk, Y. A. (2022). Project management in academic physical education system: benefits analysis. *Theory and Practice of Physical Culture*, (3), 55-57. http://www.tpfk.ru/index.php/TPPC/article/view/169

Camastra, F. D. & González Vallejo, R. (2025). Inteligencia artificial, sostenibilidad e impacto ambiental. Un estudio narrativo y bibliométrico. *Región Científica*, *4*(1), 2025355. https://doi.org/10.58763/rc2025355

Cao, J., Zhang, S. S., Mou, Y. J. & Zhang, J. H. (2004). Project management and executing integration technology. *Jisuanji Jicheng Zhizao Xitong/Computer Integrated Manufacturing Systems, CIMS*, *10*(1), 37-43. http://www.cims-journal.cn/EN/abstract/abstract471.shtml

Colombo, S. & de Angelis, I. (2021). La República Popular China y Estados Unidos: revolución científico-tecnológica y disputa tecnológica en el siglo XXI. *Revista Mexicana de Ciencias Políticas y Sociales*, *66*(243), 163-189. https://doi.org/10.22201/fcpys.2448492xe.2021.243.72582

Crawford, T., Duong, S., Fueston, R., Lawani, A., Owoade, S., Uzoka, A., Parizi, R. M. & Yazdinejad, A. (2023). AI in software engineering: a survey on project management applications. *arXiv*. https://doi.org/10.48550/arXiv.2307.15224

Dabirian, S., Moussazadeh, M., Khanzadi, M. & Abbaspour, S. (2021). Predicting the effects of congestion on labour productivity in construction projects using agent-based modelling. *International Journal of Construction Management*, *23*(4), 606–618. https://doi.org/10.1080/15623599.2021.1901330

Domínguez-Díaz, L. E., Sánchez-Suárez, Y., Marqués-León, M. & Hernández-Nariño, A. (2024). Analysis of the scientific production on the implementation of knowledge management for supply chain sustainability. *DYNA*, *91*(233), 140-146. https://doi.org/10.15446/dyna.v91n233.113851

Dong, H., Dacre, N., Baxter, D. & Ceylan, S. (2024). What is Agile Project Management? Developing a New Definition Following a Systematic Literature Review. *Project Management Journal*, *55*(6), 668-688. https://doi.org/10.1177/87569728241254095

Estrada Herrera, P. & Pueblita Mares, J. (2023). Metodología de construcción esbelta en la optimización de los resultados de un proyecto de edificación. *Región Científica*, *2*(2), 2023113. https://doi.org/10.58763/rc2023113

Ferreira Marques, J. & Bernardino, J. (2019). Evaluation of Asana, Odoo, and ProjectLibre Project Management Tools using the OSSpal Methodology. In J. Dietz; D. Aveiro & J. Filipe (Eds.), *Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management IC3K* (Volume 2) (pp. 397-403). SciTePress. https://doi.org/10.5220/0008351903970403

Filippetto, A. S., Lima, R. & Barbosa, J. L. V. (2021). A risk prediction model for software project management based on similarity analysis of context histories. *Information and Software Technology*, *131*, 106497. https://doi.org/https://doi.org/10.1016/j.infsof.2020.106497

Galindo Vázquez, O., Muñóz Martínez, M., Campos Ugalde, S., Rojas Castillo, E., Maya Vázquez, M. C. & Alvarado Aguilar, S. (2013). Tamizaje de aspectos psico-oncológicos: validación de una lista de chequeo. *Psicooncología*, *10*(2-3), 407-415. https://doi.org/10.5209/rev_PSIC.2013.v10.n2-3.43458

Ghaleb, H., Alhajlah, H. H., Bin Abdullah, A. A., Kassem, M. A. & Al-Sharafi, M. A. (2022). A Scientometric Analysis and Systematic Literature Review for Construction Project Complexity. *Buildings*, *12*(4), 482. https://doi.org/10.3390/buildings12040482

Głodziński, E. & Szymborski, M. (2019). Utilization of software supporting project management in middle and large project-based organizations: an empirical study in Poland. *Procedia Computer Science*, *164*, 389-396. https://doi.org/10.1016/j.procs.2019.12.198

Goncharuk, S. V., Goncharuk, Y. A., Mironova, T. A. & Zhilina, L. V. (2022). Management of physical culture and health improving activities in the higher education institution based on the project approach. *Teoriya i Praktika Fizicheskoy Kultury*, *2022*(5), 66-68. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85136236065&partnerID=40&md5=bd075e4009073f9b74874a42a3f54246

Ivan, B. & Munggana, W. (2013). Implementasi Aplikasi Manajemen Proyek di PT GLOBAL TWIN STAR Menggunakan Zoho Project. *ULTIMA InfoSys*, *4*(2). https://doi.org/10.31937/si.v4i2.244

Karmazina, L.I., Nekrassova, N.A. & Bolatzhanuly, T. (2014). Project management technology development in the Republic of Kazakhstan: Current situation and problems. *Actual Problems of Economics*, *162*(12), 180-189. https://www.scopus.com/inward/record.uri?eid=2-s2.0-84938876927&partnerID=40&md5=c4f8b74d90e37fb366f80c708b30d1fd

Khaliev, M. S. U., Patrusova, A. M. & Natalevich, L. F. (2021). Project management using IT applications. *Journal of Physics: Conference Series*, *2032*, 012127. https://doi.org/10.1088/1742-6596/2032/1/012127

Lawal, Y. A., Sanwoolu, J. A., Adebayo, O. T. & Olateju, O. I. (2024). Enhancing Sustainability in Project Management through Smart Technology Integration: A Case Study Approach to Green Building Projects. *Dutch Journal of Finance and Management*, *7*(2), 32823. https://doi.org/10.55267/djfm/15772

Ledesma, F. & Malave González, B. E. (2022). Patrones de comunicación científica sobre E-commerce: un estudio bibliométrico en la base de datos Scopus. *Región Científica*, *1*(1), 202213. https://doi.org/10.58763/rc202214

Li, H. B., Li, H. & Chen, Y. (2008). Application of portfolio management to bidding decision-making. *Wuhan Ligong Daxue Xuebao/Journal of Wuhan University of Technology*, *30*(6), 170-173. https://www.scopus.com/inward/record.uri?eid=2-s2.0-48049095203&partnerID=40&md5=314b94550c09a0531f73d9fbf46bcaee

Lumseyfai, J. (2020). A Four-Pillared Holistic Model for Improving Performance in Engineering Virtual Project Teams. *Engineering Management Journal*, *32*(2), 107-119. https://doi.org/10.1080/10429247.2019.1672409

Medina Enríquez, A. & Crespo Rodríguez, M. Y. (2019). Lista de chequeo para evaluar la planeación estratégica como herramienta de auditoría de procesos. *Magazine de las Ciencias*, *4*(3), 43-53. https://doi.org/10.5281/zenodo.3339686

Medina Enríquez, A., Medina León, A., Nogueira Rivera, D. & Camacho Villota, W. (2022). Propuesta de una lista de chequeo para la auditoría del proceso de gestión de Inventarios. *Magazine de las Ciencias*, *7*(3), 1-22. https://doi.org/10.33262/rmc.v7i3.2673

Nápoles Villa, A. V. & Marrero Fornaris, C. (2023). Diseño y aplicación de la lista de chequeo, como herramienta para abordar la reducción de riesgos en la gestión por competencias. *Revista de Investigación Lationamericana en Competitividad Organizacional*, *5*(17), 12-26. https://dialnet.unirioja.es/descarga/articulo/9403007.pdf

Neri de Souza, D., Neri de Souza, F. & Alarcão, I. (2020). Qualitative research and project management: Technologies to improve processes and results. *New Trends in Qualitative Research*, *2*, 719-733. https://doi.org/10.36367/ntqr.2.2020.719-733

Oscanoa, T. J. (2013). Uso seguro de los medicamentos en adultos mayores: una lista de chequeo. *Revista Peruana de Medicina Experimental y Salud Pública*, *30*(2), 320-325. http://www.scielo.org.pe/scielo.php?pid=S1726-46342013000200026&script=sci_abstract

Panakal, D. & Medley, M. (2007). The global project management challenge. *Dr. Dobb's Journal*, *32*(2), 65-67. https://www.scopus.com/inward/record.uri?eid=2-s2.0-33846707473&partnerID=40&md5=49446191204e425933fc2b076162b25f

Polukhin, O. N., Babinsev, V. P., Goncharuk, C. V. & Goncharuk, Y. A. (2020). Project-based approach to management of development of academic educational and physical and sports environment. *Teoriya i Praktika Fizicheskoy Kultury*, *2020*(7), 66-68. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85089241034&partnerID=40&md5=ef2359490f0974637b6ff9892b62a9df

Portal Iznaga, N., Lara Pérez, F., Vaillant Lara, Y., Veitia Arrieta, I. & Pando Heras, A. M. (2023). Uso de las tecnologías de comunicación e información en educación cívica y ciudadana. Capacitación docente. *Revista Científica Cultura, Comunicación y Desarrollo*, *8*(3), 212-220. https://rccd.ucf.edu.cu/index.php/aes/article/view/523

Potapkina, E. P., Mazhaeva, T. V., Nosova, I. A., Kozubskaya, V. I., Sinitsyna, S. V. & Dubenko, S. E. (2022). Risk Management System in Municipal School Catering. *Public Health and Life Environment*, (9), 59-66. https://doi.org/10.35627/2219-5238/2022-30-9-59-66

Procacciono, J. D. & Verner, J. M. (2006). Software project managers and project success: An exploratory study. *Journal of Systems and Software*, *79*(11), 1541-1551. https://doi.org/10.1016/j.jss.2006.01.010

Sánchez Suárez, Y., Pérez Gamboa, A. J., Hernández Nariño, A., Díaz-Chieng, L. Y., Marqués León, M., Pancorbo Sandoval, J. A. & Rodríguez Torres, E. (2023). Cultura hospitalaria y responsabilidad social: un estudio mixto de las principales líneas para su desarrollo. *Salud, Ciencia y Tecnología*, *2*, 451. https://doi.org/10.56294/sctconf2023451

Sánchez Suárez, Y., Trujillo García, L., Hernández Nariño, A., Cuervo Saiz, L., Sablón Cossío, N. & Marqués León, M. (2023). Una aproximación a la economía circular y su contribución en el contexto de la pandemia. *Infodir*, (40). https://revinfodir.sld.cu/index.php/infodir/article/view/1336/1656

Sarmentero Bon, I., Sánchez Suárez, Y., Rodríguez Sánchez, Y., Bravo Macías, C. C. & Torrens Pérez, M. E. (2022). Bibliometría sobre la cultura organizacional en el sector de la salud, ante la covid-19. *Revista Universidad y Sociedad*, *14*(S6), 427-436. https://rus.ucf.edu.cu/index.php/rus/article/download/3474/3418

Sarmiento García, H. H., Vite Alejandrez, C., Cruz Vite, R. U. & González González, F. (2024). Metodología Project Management Institute en modelos educativos. Caso de estudio: Academia de Edificación del programa educativo de Ingeniería Civil de la Universidad Tecnológica de la Huasteca Hidalguense. *Región Científica*, *3*(1), 2024269. https://doi.org/10.58763/rc2024269

Shi, G. Q., Zhu, Y. Q., Li, B. H. & Chai, X. D. (2005). Project management technology of complex virtual prototype engineering. *Xitong Fangzhen Xuebao/Journal of System Simulation*, *17*(8), 1905-1908. https://www.scopus.com/inward/record.uri?eid=2-s2.0-23744449853&partnerID=40&md5=e12306b3964832112cccdeb0e77217a1

Shi, J. & Antwi-Afari, M. F. (2023). Organizational leadership and employee well-being in the construction industry: a bibliometric and scientometric review. *Journal of Engineering, Design and Technology*. https://doi.org/10.1108/JEDT-05-2023-0174

Shoushtari, F., Daghighi, A. & Ghafourian, E. (2024). Application of Artificial Intelligence in Project Management. *International Journal of Industrial Engineering and Operational Research*, *6*(2), 49-63. https://www.researchgate.net/profile/Ali-Daghighi/publication/385943436_Application_of_Artificial_Intelligence_in_Project_Management/links/673d0c4fb94c451c11667c7d/Application-of-Artificial-Intelligence-in-Project-Management.pdf

Strode, D., Dingsøyr, T. & Lindsjorn, Y. (2022). A teamwork effectiveness model for agile software development. *Empirical Software Engineering*, *27*(56), 1-50. https://doi.org/10.1007/s10664-021-10115-0

Teslia, I., Khlevna, I., Yehorchenkov, O., Yehorchenkova, N., Grigor, O., Kataieva, Y., Latysheva, T., Prokopenko, T., Tryus, Y. & Khlevnyi, A. (2022). Development of the concept of Building Project Management Systems in the context of digital transformation of project-oriented companies. *Eastern-European Journal of Enterprise Technologies*, *6*(3 (120), 14-25. https://doi.org/10.15587/1729-4061.2022.268139

Teslia, I., Yehorchenkova, N., Yehorchenkov, O., Kataieva, Y., Zaspa, H. & Khlevna, I. (2017). Development of principles and method of electronic project management. *Eastern-European Journal of Enterprise Technologies*, *5*(3 (89), 23-29. https://doi.org/10.15587/1729-4061.2017.109534.

Tsopa, N. V., Malakhova, V. V. & Fedorkina, M. S. (2021). Construction project management technology based on the theory of system stability. *Journal of Physics: Conference Series*, *1926*, 012063. https://doi.org/10.1088/1742-6596/1926/1/012063

Utkin, V. F., Anfimov, N. A., Sokolov, Y. A., Rcshctin, I. A. & Tsvetkov, A. B. (2000). Complex icar -effective risk management instrument at creation and operation of space systems. *Science and Technology Series*, (99), 93-95. https://www.scopus.com/inward/record.uri?eid=2-s2.0-79951858770&partnerID=40&md5=823e86dd055c68a8e7b2511acab7416f

Wang, S. (2017). Engineering management informationization based on computer information network technology. *Acta Technica*, *62*(1A), 259-268. http://journal.it.cas.cz/62(2017)-1A/Paper%2024%20Shijung%20Wang.pdf

Wang, T. & Chen, H. M. (2023). Integration of building information modeling and project management in construction project life cycle. *Automation in Construction*, *150*, 104832. https://doi.org/https://doi.org/10.1016/j.autcon.2023.104832

Yerimbetova, A. & Ayapbergenova, A. (2022). Project management technology in creating a business process management information system at the present stage of development of the telecommunications sector of

kazakhstan. *Eastern-European Journal of Enterprise Technologies*, *5*(3(119), 17-28. https://doi.org/10.15587/1729-4061.2022.261091

Yudiono, U. (2020). Business-Map learning media: application-based business planning media. *Advances in Social Science, Education and Humanities Research*, *542*, 354-357. https://www.researchgate.net/publication/351247193_Business-Map_Learning_Media_Application-Based_Business_Planning_Media/fulltext/608ce882a6fdccaebdfbaa28/Business-Map-Learning-Media-Application-Based-Business-Planning-Media.pdf?origin=scientificContributions

Zahorodnia, L., Protsko, Y., Pakhomova, T., Titarenko, O. & Luchko, Y. (2024). The Role of Information and Communication Technologies in Students' Academic Acchievements. *Cadernos De Educação Tecnologia E Sociedade*, *17*(se1), 147-158. http://doi.org/10.14571/brajets.v17.nse1.147-158

Zaman, U., Nawaz, S. & Nadeem, R. D. (2020). Navigating innovation success through projects. Role of CEO transformational leadership, project management best practices, and project management technology quotient. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 168. https://doi.org/10.3390/joitmc6040168

Zhou, S. (2010). The Transformation and Thinking of Management Concept in Construction Industry Based on Sustainable Development. *2010 International Conference on Management and Service Science*. https://doi.org/10.1109/ICMSS.2010.5577882

Funding

The authors did not receive funding for the development of this research.

Declaration of conflict of interest

The authors declare that there is no conflict of interest.

Autorship contribution

1. Conceptualization: Sonia Emilia Leyva Ricardo
2. Data curation: José Armando Pancorbo Sandoval, Leonardo Ernesto Domínguez Díaz
3. Formal analysis: Sonia Emilia Leyva Ricardo
4. Funding acquisition: -
5. Investigation: Sonia Emilia Leyva Ricardo
6. Methodology: Sonia Emilia Leyva Ricardo, Leonardo Ernesto Domínguez Díaz
7. Project administration: Sonia Emilia Leyva Ricardo, José Armando Pancorbo Sandoval
8. Resources: Sonia Emilia Leyva Ricardo, José Armando Pancorbo Sandoval
9. *Software*: Leonardo Ernesto Domínguez Díaz
10. Supervision: Sonia Emilia Leyva Ricardo, Leonardo Ernesto Domínguez Díaz
11. Validation: José Armando Pancorbo Sandoval
12. Visualization: José Armando Pancorbo Sandoval, Leonardo Ernesto Domínguez Díaz
13. Writing original draft: Sonia Emilia Leyva Ricardo, José Armando Pancorbo Sandoval
14. Writing review and editing: Sonia Emilia Leyva Ricardo, José Armando Pancorbo Sandoval, Leonardo Ernesto Domínguez Díaz

---

Editor: Ph.D Arialys Hernández Nariño http://orcid.org/0000-0002-0180-4866