DIJEMSS:
Dinasti International Journal of Education Management and Social Science
E-ISSN: 2686-6331
P-ISSN: 2686-6358
https://dinastipub.org/DIJEMSS dinasti.info@gmail.com +62 811 7404 455
DINASTI PUBLISHER

DOI: https://doi.org/10.38035/dijemss.v6i6

A Bibliometric Analysis of Implementing Project Management on Construction Workers in Mining Building Projects

Tuswoyo[1], Ahmad Hidayat[2], Ade Arqam Hidayat[3]
[1]Institut Ilmu Sosial dan Manajemen STIAMI, Jakarta, Indonesia, tuswoyo@stiami.ac.id
[2]Institut Ilmu Sosial dan Manajemen STIAMI, Jakarta, Indonesia, ahmad.hidayat@stiami.ac.id
[3]Institut Ilmu Sosial dan Manajemen STIAMI, Jakarta, Indonesia, arqhamhidayat@gmail.com

Corresponding Author: tuswoyo@stiami.ac.id[1]

Abstract: The application of project management is very often used in construction work for mining industry buildings and city facilities, with various methods in line with the demands of the times and technology, so it is necessary to study the application of construction project management that supports the mining process. The literature review aims to systematically obtain information on the development of scientific research in construction project management as a measure of understanding the current and future progress of the production of scientific studies using a quantitative review technique called bibliometric analysis, data taken from the Scopus and Google Scholar databases using publish or software. Perish (PoP) and Mendeley were then analyzed using VOSviewer software. Of the 1009 journal articles, only 867 were selected, based on the most relevant terms and words to be analyzed. The results of the analysis show that in the field of project management, industrial construction buildings and safety are the most dominant topics with the largest cluster, namely project management. The total articles obtained from 2015 to 2023, show that the construction sector cluster topic relating to safety and labor is the latest research. during the pandemic. Overall, this research can be used by researchers as a basis for future research on topics that require further study, namely safety culture and local culture to create good workforce performance as measured by the level of job satisfaction and employee satisfaction as project owners using the latest technology.

Keyword: Management Project, Estimator Project, Construction Method, Safety, Culture, Manpower, Mining Construction.

INTRODUCTION

Currently, technological developments have made it easier for researchers to get information about any topics that are currently hotly discussed in the world of research, making it easier for researchers to map the number of research articles that have been conducted each year via the VOSviewer application. Innovative development and automated decision-making are becoming increasingly popular along with the growth of the internet, big data, cloud computing, and other technologies (Li et al., 2022).

A project is a series of activities carried out within a certain time limit that uses certain resources to obtain the best results in the future. The series of project activities will not be free from constraints and problems such as cost, quality, and time which are often encountered in project implementation and are generally associated as benchmarks for project success, namely right cost, right quality, and right time (Mahyuddin, 2002). Projects can also be defined as temporary and unique efforts designed to produce products and services, by determining the beginning and end of the business activities with limited time, funding, or staff to meet unique goals and objectives, for example, to bring about beneficial changes that have added value, including information technology-based projects, information systems, and other infrastructure projects according to (Sumartono & Huda, 2020). The temporary nature of projects is very different from business, the development of small and large-scale projects has a sequential flow of development stages that influence each other, (Dhanar Intan Surya Saputra et al., 2021). Information Technology project development is widely applied to various aspects of life such as Education, Agriculture, and Animal Husbandry, to the economy such as E-Commerce (Berlilana & Afiana, 2020). The nature of the project is in the form of repetitive, permanent, and semi-permanent functional activities to produce products or services. Managing these different production approaches requires the development of different technical skills and management strategies (Dalcher, 2016)

Project management is planning, scheduling, and controlling project activities to achieve project objectives (Iswanto & Akbar, 2021), the nature of project management is a unique, complex, interconnected series of activities that have one goal that must be completed according to the schedule, budget, and specifications which has been determined by (Kalyani & Mehta, 2019). Project management is the process of leading teamwork to achieve all goals within given constraints. This information is usually explained in project documents created at the beginning of the planning process (Hespe et al., 2022). The main constraints in project management are scope, time, and budget. The challenges that arise are how to optimize the allocation of required inputs and how to implement them to achieve predetermined goals (Nikaeen & Najafi, 2022). According to the International Project Management Association, project management includes planning, organizing, monitoring, and controlling all aspects of a project with the motivation to achieve the goals of the project according to schedule, budget, and quality (Nikaeen & Najafi, 2022). From several explanations of definitions according to experts that have been presented, it can be concluded that project management is a limited series of activities carried out to achieve the success of a project, starting from the initiation, planning, scheduling, monitoring/supervision stages, until the completion of the project at the specified time. Project management has a goal in its path, namely to complete a complete project that meets the client's goals. In some projects, the goal is to apply project management to shape or adjust the client's report to suit the client's objectives. Once the client's objectives are clearly defined, it should be able to influence all decisions made by people involved in the project for example, project managers, designers, contractors, and sub-contractors because when project management objectives are not clearly defined or are too strict it will be detrimental (Zada et al., 2023).

In the twenty-first century, project management continues to develop and therefore it is necessary to know in what direction project management is currently developing. Project implementation can be defined as a temporary activity that lasts for a limited period, with the allocation of certain resources, and is intended to carry out tasks whose targets have been clearly outlined. One of the differences between project activity tasks and operational activities is that in project activities various activities require various scientific disciplines, in addition to the intensity of activities in changing cycle periods. Project performance is how the project works by comparing work results. real with estimates of how things work in the work contract agreed by the owner and implementing contractor.

For construction projects to be completed successfully on time, cost, and quality, adequate planning, organization, coordination, and control are needed. The process of implementing

management functions such as planning, implementation, and control of a project systematically in the construction industry requires the use of available resources effectively and efficiently to meet project objectives (Waney & Ruitan, 2022). Construction that employs workers has a risk of work accidents and death. Interrelated accidents and damage caused to equipment, property, and workers can produce adverse effects on overall productivity. Most accidents occur due to ever-changing site conditions, varying human behavior, and unsafe work procedures (Abdelhamid & Everett, 2000). Likewise, technological advances have created more dangerous work environments (Laub, 1999). In several developing countries, business strategies and construction companies do not include work safety regulations and they still rely more on labor than equipment for every activity carried out (Yi & Chan, 2014). Unsafe work safety conditions are still found on various construction sites, resulting in cost overruns, time delays, and low productivity (Laub, 1999). The main obstacles in implementing occupational safety were identified as non-cooperative workers, lack of knowledge of safety management techniques, disinterest of project owners, and absence of regulatory authority. Although safety issues are included in contract documents, they are sometimes not implemented properly. According to (Choudhry et al., 2008), supervision is needed in the implementation of work safety standards in every development project so that construction workers receive occupational health insurance. The first step that must be taken to ascertain weaknesses in the practice of implementing work safety programs is by using main indicators of safety practices and site investigations (Flin et al., 2000) Cross-cultural competence is often considered as part of communicative competence that can change knowledge, attitudes, and behavior to be open and flexible towards other cultures (Storey, 2012). A person with cross-cultural competence can build relationships with people who have different cultures, resolve complex conflicts by overcoming obstacles created by cultural differences, and have the ability to interact with people who have different cultures . In the construction industry, which has great opportunities, you can find workers who have different cultures who need this competency. Due to cultural diversity, this competency is needed to support the completion of work as a team so that it can provide effective work results (Hernandez et al., 2009). Cross-cultural competence has the role of realizing individual performance that supports each other between other workers. (Wijaya, 2017), performance is a form of result or level of success of construction workers as a whole within a certain time carrying out a task compared to work results, targets, or criteria that have been determined in advance and have been mutually agreed upon before the development project begins. Furthermore, it will be managed to achieve productivity and effectiveness to build success individually and within the organization.

While information technology (IT) is a technology used to obtain and process information that supports individual and social goals (Wijanarko et al., 2021), information technology or IT often involves complex organizations such as hardware, software, procedures, data, and people who are prepared to handle this task (Machado et al., 2021). IT-based project implementation can facilitate all types of instructions to support the smooth implementation of projects so it can be said that information teknology is role in project management acts as a moderating indicator that influences project management variables so that they are more effective. This description shows that in project management, especially regarding decisions taken in carrying out project completion strategies, there are still many questions that must be answered focused on methods, human resources, and organizational systems of project leaders which are the input allocation that must be optimized so that project completion is on target and by previously determined targets. To be more precise by the wishes of all stakeholders, project management also requires cultural control, both regarding work safety and local wisdom, and moderated by technological developments according to the demands of the times.

METHOD

The method used is a qualitative descriptive method. According to Creswell (2014), the definition of qualitative methods emphasizes the process that flows from philosophical assumptions to interpretive lenses, and then to the procedures involved in studying social or humanitarian problems. The descriptive method is research that describes or explains the condition of the object being studied as it is, according to the situation and conditions at the time the research was carried out (Sugiyono, 2010).

This study was carried out by searching the Scopus and Google Scholar databases via the Publish or Perish (PoP) application to obtain journal data and then export it in Ris file format. The exported data is then processed by checking and organizing the data using Mendeley software and analyzed using the VOSviewer program to find out a bibliometric map of the development of project management research, especially in the construction sector. The results of using VOSviewer will produce variations according to the amount of data that will be used in conducting research. Variations occur in large and small quantities in the form of circles and interconnected lines. In this case, it relates to the topic that is more dominant or not in the journal data that will be used. After VOSviewer has grouped groups, there are 3 visualization displays, namely network, overlay, and density map (Markoulli et al., 2017). Several articles will later go through a review process in this research which will be explained based on the study topic, framework, and several previous research findings which have been indexed in the Scopus and Google Scholar databases which have been run using PoP, journals which have gone through the process will go through several the next stage of the process is as depicted in the picture. The research Flow chart started by collecting data using POP to analyzing data using VOSviewer.

RESULTS AND DISCUSSION

This section contains data (in brief form), data analysis, and interpretation of the results. Results can be presented in tables or graphs to clarify the results verbally because sometimes the display of an illustration is more complete and informative than the display in narrative form. This section must answer the problems or research hypotheses that have been formulated previously.

A search using PoP produced 1009 journal search results that were related to the topic to be discussed, namely construction project management. The second stage is to verify the search results that are being collected using the Mendeley application. When carrying out verification by removing several unrelated journals, it resulted in 867 articles published in journals that had been selected and deemed appropriate to the research topic, then analysis was carried out using VOSviewer. By using VOSviewer, analysis is carried out which will produce conclusions as stated in this research, described as follows:

In Figure 1, The bibliometric mapping of cluster relationships across research in the construction domain reveals five dominant clusters: Project Management, Construction Industry, Building Construction, Construction Sector, and Safety. These clusters underscore the centrality of these themes in shaping the direction of scholarly inquiry. The prominence of project management and building construction, particularly when examined through the lens of human resources and safety, reflects a growing recognition of safety not merely as a procedural concern but as an embedded organizational culture. This culture is increasingly influenced by the integration of digital applications, technological innovations, and customer satisfaction metrics. However, the analysis also highlights notable research gaps—specifically, the limited exploration of safety culture, the role of local workforce dynamics, and the level of customer happiness as influenced by project management practices. Furthermore, the potential moderating role of technology in enhancing customer satisfaction remains an underexplored dimension, offering fertile ground for future research.

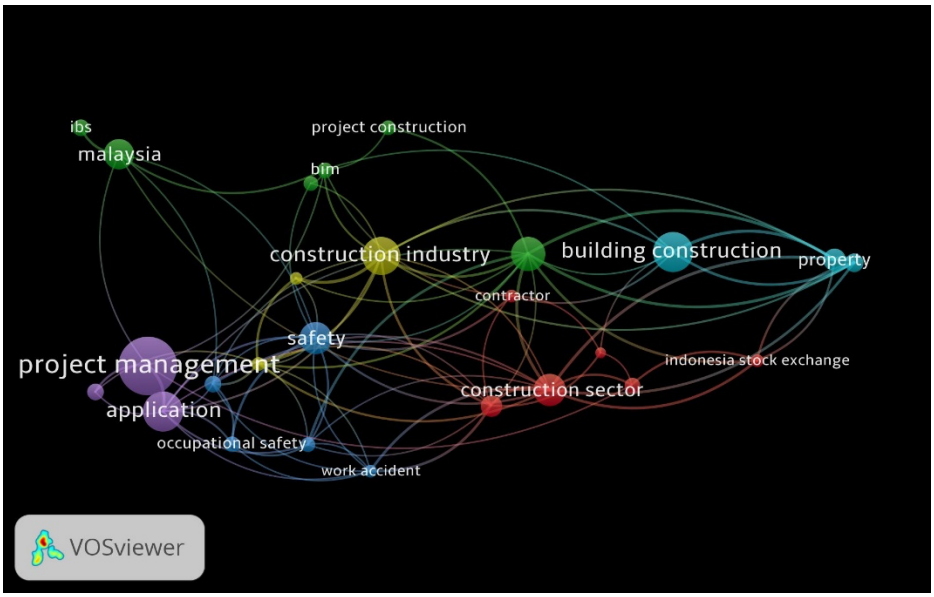

Figure 1. Cluster relationships in each field
Source: VOSviewer Download Oct 11, 2024

In general, as illustrated in Figure 2, the novelty of research in the construction sector cluster relates to occupational safety and project management integrated with technology during the pandemic period. This research cluster, which encompasses the theme Project Management, Application, and Pandemic, is depicted in detail through bibliometric results. The findings indicate that project management within the construction context experienced significant development through the adoption of digital technologies in response to challenges posed by the pandemic, while also opening new opportunities for implementing automation and data-driven decision-making.

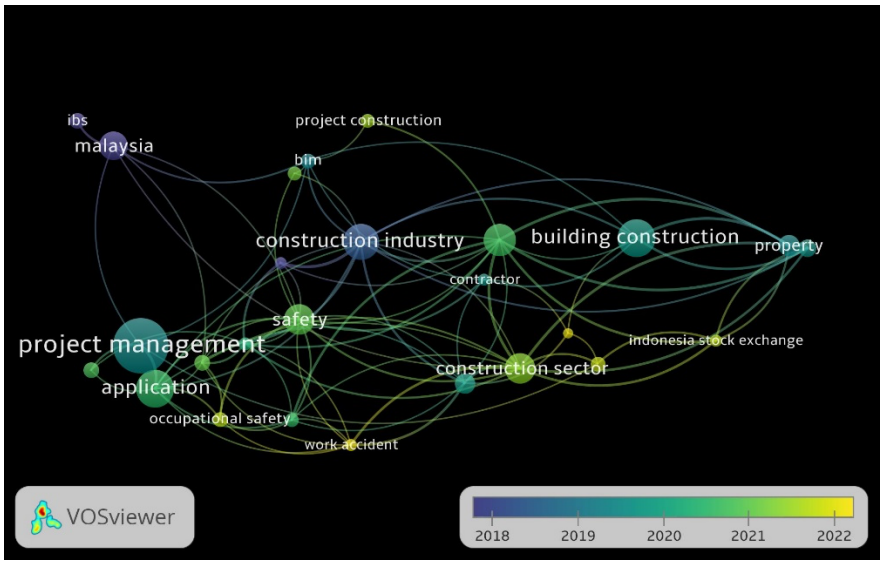

Figure 2. The Novelty of the Research
Source: VOSviewer Download Oct 11, 2024

As illustrated in Figure 3, the novelty detail of the research cluster—Performance, Construction Project, and Pandemic—highlights the emergence of innovative themes within the domain of project management, particularly in relation to digital applications and adaptive strategies during the COVID-19 pandemic. The bibliometric mapping reveals that research

novelty is concentrated in clusters focusing on the application of technology in project execution and the evolution of building industry management practices under pandemic-induced constraints. This indicates a shift in scholarly attention toward resilience, digital integration, and performance optimization in construction project management during times of global disruption.

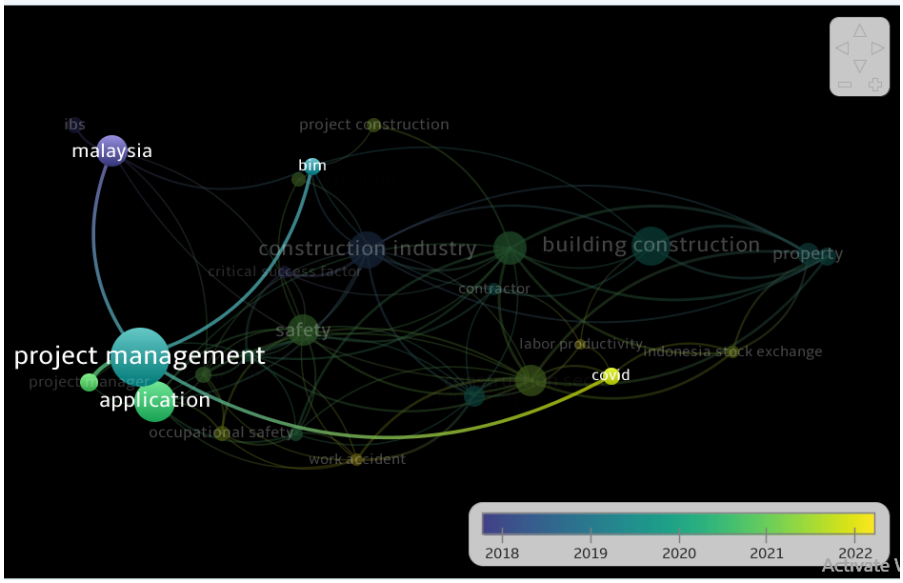

Figure 3. The Novelty Detail of the Research Cluster Project Management, Application and Pandemic

Source: VOSviewer Download Oct 11, 2024

Figure 4. The Novelty Detail of the Research Cluster Construction Industry Sector and Safety, illustrates that the novelty of the research occurred in the construction sector and safety cluster which is related to industry, labor, and shares regarding project management constructions.

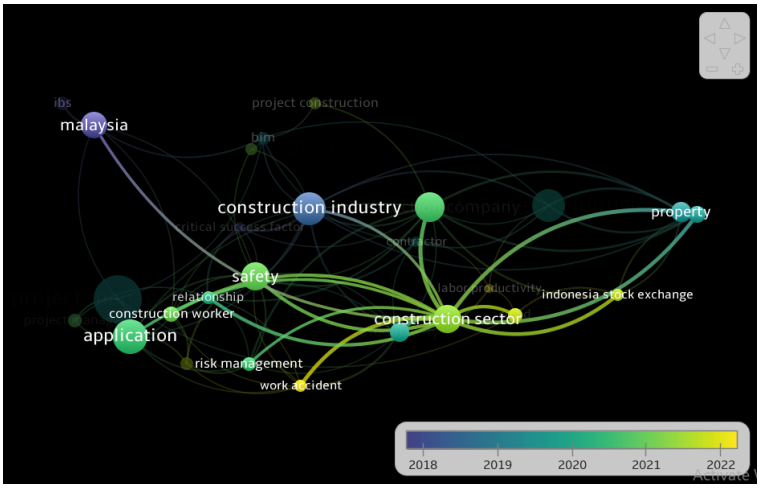

Figure 4. The Novelty Detail of the Research Cluster Construction Industry Sector and Safety

Source: VOSviewer Download Oct 11, 2024

Opportunities are shown at the edge or boundary of the cluster which is the focus point in Figure 5. The Research Concerns opportunities, namely application or use of technology,

occupational safety, project construction, as well as those related to the Indonesian stock exchange (shares).

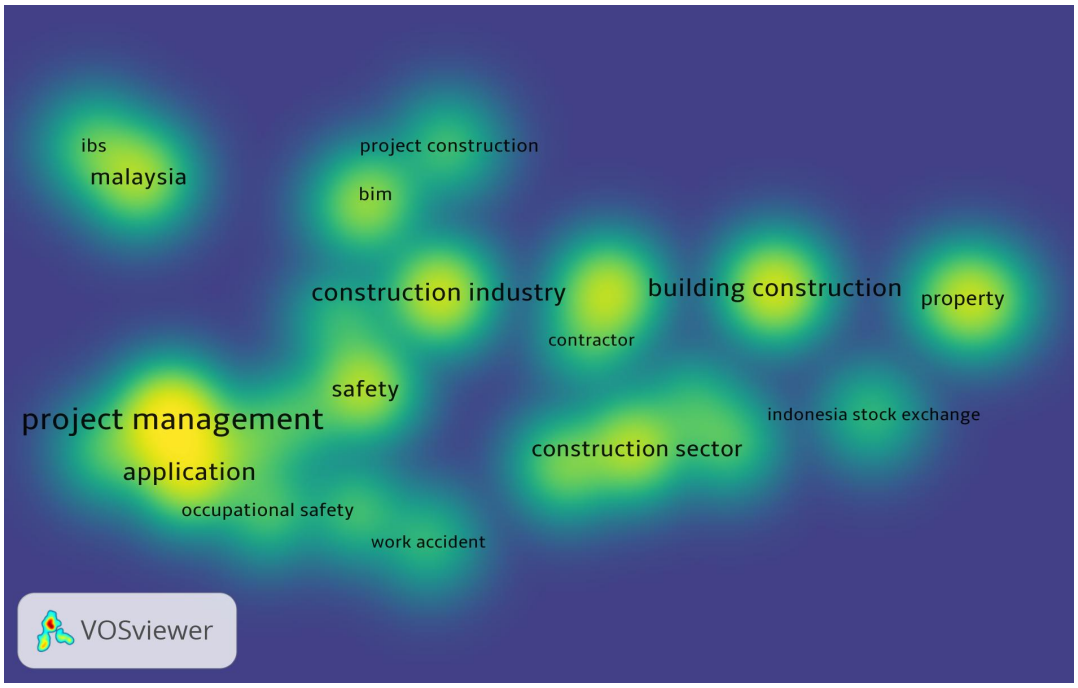

Figure 5. The Research Concerns Opportunities
Source: VOSviewer Download Oct 11, 2024

Bibliometric analysis in the field of project management research reveals several dominant clusters, including Project Management, Construction Industry, Building Construction, and the broader Construction Sector. These clusters demonstrate strong interdisciplinary linkages, particularly in their influence on adjacent domains such as occupational safety, workforce dynamics, and technological integration. The emergence of research novelty is largely attributed to the COVID-19 pandemic, which catalyzed shifts in project and company management practices, safety protocols, labor conditions, and the adoption of digital technologies in construction.

Furthermore, the analysis identifies promising research opportunities within sub-clusters such as project management applications, construction company operations, safety culture, and performance outcomes. These areas remain underexplored, especially in relation to the moderating role of technology and its impact on workforce well-being and customer satisfaction. Future studies could benefit from investigating how localized labor practices, safety culture, and digital transformation intersect to shape project success in post-pandemic construction environments.

CONCLUSION

Research It can be concluded that the fields related to project management clusters, construction companies, safety, and the influence of performance, especially regarding the performance of local workers, raise questions about the relationship between local culture and safety culture control so that construction companies can become healthy companies by producing best performance. A good work culture accompanied by the appropriate use of technology in project management, will create a healthy company that can produce safely. This study explores how local knowledge networks within industrial clusters—especially in developing regions—are shaped by firm-level, structural, and cultural factors. It emphasizes the

importance of local culture and relational dynamics in enhancing organizational performance and innovation within clusters.

It is necessary to carry out further bibliometric research using applications other than VIOSviewer so that it can be used as a comparison and get more perfect results. From the results of this bibliometric research, it is recommended that further research can be carried out regarding project management which is controlled by a safety culture and local culture to create good construction workforce performance as measured by the level of job satisfaction and better satisfaction as project owners by using latest technology. This article highlights the role of communication and leadership in managing diverse cluster environments. It underscores how cultural alignment and trust-building are essential for effective cluster performance—an idea that resonates with your emphasis on safety culture and local workforce dynamics

REFERENCE

Abdelhamid, T. S., & Everett, J. G. (2000). Identifying Root Causes of Construction Accidents. *Journal of Construction Engineering and Management*, *126*(1). https://doi.org/10.1061/(asce)0733-9364(2000)126:1(52)

Berlilana, B., & Afiana, F. N. (2020). E-Commerce Analysis of Customer Satisfaction and Hotel Reservation Quantity in Cilacap Regency. *Telematika*.

Choudhry, R. M., Fang, D., & Rowlinson, S. (2008). Challenging and Enforcing Safety Management in Developing Countries: A Strategy. *International Journal of Construction Management*, *8*(1). https://doi.org/10.1080/15623599.2008.10773110

Dalcher, D. (2016). Thinking Teams, performing teams and sustaining teams: Beginning the dialogue around working together. *PM World Journal*, *5*(8).

Dhanar Intan Surya Saputra, Yudhistira Janice Al Sava, Yusmedi Nurfaizal, Didit Suhartono, & Sitaresmi Wahyu Handani. (2021). Implementation of Web-Based System for Pigeon Post Competition in Galaxy Community. *Jurnal Pengabdian Dan Pemberdayaan Masyarakat Indonesia*, *1*(12). https://doi.org/10.59247/jppmi.v1i12.56

Flin, R., Mearns, K., O'Connor, P., & Bryden, R. (2000). Measuring safety climate: Identifying the common features. *Safety Science*, *34*(1–3). https://doi.org/10.1016/S0925-7535(00)00012-6

Hernandez, M., Nesman, T., Mowery, D., Acevedo-Polakovich, I. D., & Callejas, L. M. (2009). Cultural competence: A literature review and conceptual model for mental health services. In *Psychiatric Services* (Vol. 60, Issue 8). https://doi.org/10.1176/ps.2009.60.8.1046

Hespe, C. M., Brown, E., & Rychetnik, L. (2022). Learning from the implementation of a quality improvement intervention in Australian general practice: a qualitative analysis of participants views of a CVD preventive care project. *BMC Primary Care*, *23*(1). https://doi.org/10.1186/s12875-022-01692-0

Iswanto, & Akbar, A. (2021). Buku Ajar Manajemen Operasi. In *Umsida Press*.

Kalyani, D., & Mehta, D. (2019). Study of Agile Scrum and Alikeness of Scrum Tools. *International Journal of Computer Applications*, *178*(43). https://doi.org/10.5120/ijca2019919318

Laub, J. A. (1999). Assessing the servant organization; Development of the Organizational Leadership Assessment (OLA) model. Dissertation Abstracts International,. *Procedia - Social and Behavioral Sciences*, *1*(2).

Li, J., Yin, G., Wang, X., & Yan, W. (2022). Automated decision making in highway pavement preventive maintenance based on deep learning. *Automation in Construction*, *135*. https://doi.org/10.1016/j.autcon.2021.104111

Machado, F., Duarte, N., Amaral, A., & Barros, T. (2021). Project Management Maturity Models for Construction Firms. *Journal of Risk and Financial Management*, *14*(12). https://doi.org/10.3390/jrfm14120571

Mahyuddin. (2002). Manajemen Proyek Konstruksi 2023. *Yayasan Kita Menulis*.

Markoulli, M. P., Lee, C. I. S. G., Byington, E., & Felps, W. A. (2017). Mapping Human Resource Management: Reviewing the field and charting future directions. *Human Resource Management Review*, *27*(3). https://doi.org/10.1016/j.hrmr.2016.10.001

Nikaeen, R., & Najafi, A. A. (2022). A Constraint Programming Approach to Solve Multi-skill Resource-constrained Project Scheduling Problem with Calendars. *International Journal of Engineering, Transactions B: Applications*, *35*(8). https://doi.org/10.5829/IJE.2022.35.08B.14

Storey, J. (2012). Postmodernism and popular culture. In *The Routledge Companion to Postmodernism, Third Edition*. https://doi.org/10.4324/9780203813201-11

Sugiyono. (2010). Metode Penelitian Bisnis. Pendekatan Kuantitatif, kualitatif dan R & D. *Bandung: Alfabeta*. https://doi.org/10.1016/S0969-4765(04)00066-9

Sumartono, & Huda, N. (2020). Manajemen Pendidikan Di Indonesia Sebagai Implementasi Triple Helix Untuk Mempersiapkan Revolusi Industri 4.0. *Jurnal Andi Djemma*, *3*(1).

Waney, E. V. Y., & Ruitan, S. (2022). Perencanaan Waktu dan Penjadwalan Pelaksanaan Proyek Pembangunan Rusun TNI di Minahasa Utara. *Prosiding Seminar Nasional Produk Terapan Unggulan Vokasi*, *1*(1).

Wijanarko, A., Kuncoro, A. P., & Wuryantoro, N. D. (2021). Penerapan Model View Controller untuk Membangun Aplikasi Data Dasar Keluarga Desa Somagede. *Jurnal Informatika*, *8*(1). https://doi.org/10.31294/ji.v8i1.8662

Wijaya, C. (2017). Perilaku individu organisasi. In *Lembaga Pengembangan Pendidikan Indonesia (LPPPI), Medan*.

Yi, W., & Chan, A. P. C. (2014). Critical Review of Labor Productivity Research in Construction Journals. *Journal of Management in Engineering*, *30*(2). https://doi.org/10.1061/(asce)me.1943-5479.0000194

Zada, M., Khan, J., Saeed, I., Zada, S., & Yong Jun, Z. (2023). Linking public leadership with project management effectiveness: Mediating role of goal clarity and moderating role of top management support. *Heliyon*, *9*(5). https://doi.org/10.1016/j.heliyon.2023.e15543