

| STUDENT | METHODOLOGY | | | FINDINGS | RESEARCH CONCLUSION | LIMITATIONS | USEFULNESS | BIBLIOGRAPHY |
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| | TYPE | DATA | CONTEXT | | | | | |
| EL JARAMILLO SUAREZ | Qualitative single-case study | Project management, Sustainable construction | Previous studies focused on the environmental aspects of sustainability in project deliverables, whereas less attention has been directed at sustainable project management during project delivery. The goal of this study is to identify the control practices that a project organization uses for sustainable project management. | The economic dimension of sustainability was linked to the bonuses and sanctions of the alliance model (i.e., the financial incentive model) and was strongly affected by actions for the environmental and social dimensions. | Sustainable project management is implemented using not only indicators but a holistic control package in which control mechanisms are used differently for different sustainability dimensions. Internal project control is complemented with sustainable project governance, linking the project to its external stakeholders and regulations. The alliance contract activates the partners to exploit innovation opportunities and, thus, promotes economic, environmental, and social sustainability. | This study is limited by the qualitative single-case design, as well as the method and data choices. | This paper addresses an insightful correlation between an economic dimension and the sanctions of the alliance model | Kivilä, Martinsuo, M., & Vuorinen, L. (2017). Sustainable project management through project control in infrastructure projects. <i>International Journal of Project Management</i> , 35(6), 1167–1183. https://doi.org/10.1016/j.ijproman.2017.02.009 |
| | Research Study | Critical success factors, project management, sustainable construction | This study contributes to the field by presenting one of the first studies in its kind focusing on CSFs for integration of sustainability into project management practices for construction projects within the context of developing countries. | Knowledge and awareness of sustainable project delivery in the PMT and constructive relationships among project stakeholders were the two most important CSFs affecting the evaluation stage. Strong commitment to sustainable project delivery from project stakeholders was found to be the most influential in the success of commitment stage and the importance of high quality workmanship to drive the integration of sustainability into project management practices | the study proposes a pool of CSFs for integration of sustainability into project management practices on construction projects that is customised for the context of developing countries. And, the stages of integration of sustainability into project management practices are conceptualised by encapsulating these CSFs in a conceptual model. | the findings have to be applied to other developing countries in light of the socio-economic discrepancies between Iran and other developing countries. Moreover, the sample size was relatively small and the respondents mostly came from contractor companies and SMEs | This paper explores the integration of sustainability projects and management practices | Banihashemi, Hosseini, M. R., Golizadeh, H., & Sankaran, S. (2017). Critical success factors (CSFs) for integration of sustainability into construction project management practices in developing countries. <i>International Journal of Project Management</i> , 35(6), 1103–1119. https://doi.org/10.1016/j.ijproman.2017.01.014 |
| | Research study | Project management maturity, project management success | This paper explores whether organisations in a developing country have become more mature over time in their project management practices, and compares the current state to findings from a similar study conducted in 2010. | The results indicated that the perceived average project management maturity dropped from the 2010 value of 2.88 to 2.64 in 2020. | the average project management maturity of certain developing countries might be comparable with those of developed countries | This study does not take into consideration the particular development approach of the projects surveyed (i.e., traditional, hybrid, or agile). This aspect of modern projects should be considered in future project management maturity studies | This paper explores the improvement of project management practices in a developing country | Pretorius, Steyn, H., & Bond-Barnard, T. J. (2023). PROJECT MANAGEMENT MATURITY AND PROJECT MANAGEMENT SUCCESS IN DEVELOPING COUNTRIES. <i>South African Journal of Industrial Engineering</i> , 34(2), 36–48. https://doi.org/10.7764/ric.00043.21 |
| | | Earned Value Management System (EVMS) | The decrease in hospital healthcare capacity in Mexico (Instituto Nacional de Estadística, Geografía e Informática, 2022), the scarcity of economic resources allocated to the creation of this type of infrastructure, the recurrent increase in execution schedules and construction costs with respect to the initial plans and the characteristics of this type of projects with frequent changes in scope, are elements that constitute the context in which hospital construction projects are developed and allow us to recognize the importance and difficulties for their monitoring and control. | With AC=Contractor Payment Estimates, the best time forecasting method is EAC[16], under the assumption that future performance will be as planned accordingly to (Buyse and Vandenbussche, 2010) and should be complemented with EAC[14] y EAC[15]; the best cost forecasting method is EAC[28], based on the Schedule Performance Index SPI(t) accordingly to (Batselier and Vanhoucke, 2015) and should be complemented with EAC[23]. | The EVM/ES performance indicators provide relevant information to the project manager for decision making allowing in the case study to evaluate the performance of the contract administration units. Thus, local supervision is associated with compliance in time and cost as opposed to project management at the central level. | A limitation of this research is the use of the Planned Duration (PD) and Planned Cost (PC) with the values they took once the projects were completed. PD and PC in practice vary as changes in the project baseline are authorized during execution. | This paper addresses a concept present in construction projects that is EVMS | Durón González, Rivas Tovar, L. A., & Cárdenas Tapia, M. (2022). Evaluation of EVM/ES forecasting methods in hospital construction projects. <i>Revista ingeniería de construcción</i> , 37(3), 405–416. https://doi.org/10.7764/ric.00043.21 |
| | Research study | Earned Value Management System (EVMS) | Earned value management systems (EVMS) are used by industry practitioners to successfully manage projects and programs; however, there has been no past study to characterize and evaluate the impact of EVMS maturity on project performance. This paper examines the relationship between EVMS maturity and ten project performance metrics through statistical analyses. | Results showed statistically significant differences between projects with high and low EVMS maturity; on average, projects exhibiting high EVMS maturity have 54% less cost overruns and 19% less change orders versus their performance measurement baseline. Higher maturity projects and programs also achieve better customer satisfaction, meet business objectives more often, and are more often in compliance with EVMS standards and guidelines. | The framework (IP2M METRR) provides the capability for project owners and contractors to objectively and consistently assess their EVMS throughout a given project. Therefore, it sheds light on the issues related to project controls and on any underdeveloped characteristics needed for a high-performing EVMS. Owners and contractors can use the framework on large and complex projects in construction, aerospace, energy, defense, and other sectors. | Some limitations may exist in this study. The tested projects were all located in the United States; however, the framework was developed considering international standards and guidelines that are applicable across geographic boundaries. | The literature review and the methodology of this research study addresses how is used the EVMS in different projects | Aramali, Gibson, G. E., El Asmar, M., & Sanboskani, H. (2023). Novel Earned Value Management System Maturity Framework and Its Relation to Project Performance. <i>Journal of Construction Engineering and Management</i> , 149(6). https://doi.org/10.1061/JCEMD4.COENG-12985 |

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| MIGUEL ANGE | Research study | 3rd Paper | Through the past several years, the emphasis in education has shifted from a teacher-centered to a learner-centered approach. Traditional teaching has too often been based on a passive lecture model, dependent on an expert teacher who funnels knowledge into the somewhat retentive minds of students. More current learning theory suggests a different role for teachers—that of facilitators. Based on research about how people learn, this article advocates that teachers use more active, inductive instruction in the classroom and demonstrates a student-centered approach using classroom examples implemented in a required, college-level business communication course. | students' own initial thoughts about communication changed or expanded as they worked to understand how others thought. In most instances, students indicated that their view of communication had been enhanced through the activity. | The faculty group successfully worked to implement other inductive approaches, such as inquiry and problem-based assignments. Cases and scenarios placed communication in the context of real-world issues, often building on prior student experience. | Does not apply | Introduces the concept of Inductive education and evidences it's use in the academic field | Smart, Witt, C., & Scott, J. P. (2012). Toward Learner-Centered Teaching: An Inductive Approach. <i>Business Communication Quarterly</i> , 75(4), 392–403. https://doi.org/10.1177/1080569912459752 |
| | Research study | 3rd Paper | Traditional engineering instruction is deductive, beginning with theories and progressing to the applications of those theories. Alternative teaching approaches are more inductive. Topics are introduced by presenting specific observations, case studies or problems, and theories are taught or the students are helped to discover them only after the need to know them has been established | Inductive methods promote students' adoption of a deep (meaning-oriented) approach to learning, as opposed to a surface (memorization-intensive) approach. It also promotes intellectual development, challenging the dualistic type of thinking that characterizes many entering college students (which holds that all knowledge is certain, professors have it, and the task of students is to absorb and repeat it) and helping the students acquire the critical thinking and self-directed learning skills that characterize expert scientists and engineers. | While the quality of research data supporting the different inductive methods is variable, the collective evidence favoring the inductive approach over traditional deductive pedagogy is conclusive. Induction is supported by widely accepted educational theories such as cognitive and social constructivism, by brain research, and by empirical studies of teaching and learning. | Does not apply | This study reviews several of the most commonly used inductive teaching methods, including inquiry learning, problem-based learning, project-based learning, case-based teaching, discovery learning, and just-in-time teaching. The paper defines each method, highlights commonalities and specific differences, and reviews research on the effectiveness of the methods. | Prince, & Felder, R. M. (2006). Inductive Teaching and Learning Methods: Definitions, Comparisons, and Research Bases. <i>Journal of Engineering Education</i> (Washington, D.C.), 95(2), 123–138. https://doi.org/10.1002/j.2168-9830.2006.tb00884.x |
| | Research study | 3rd Paper | Inductive teaching is one way to help students learn to use the fundamental concepts for problem solving – focusing on cases that students could work on to help develop an understanding of the phenomenon. For effective inductive teaching and problem solving tasks a supportive technical concept is needed. | Schools have typically neglected teaching for thinking, and transfer thinking operations from one subject to another and to real life. Emphasis has been on information acquisition and low-level content. Students need to do more than learn information. Thinking skills and process-es need to be learned, as does the ability to use these in a variety of contexts. Teaching should accomplish authentic, active, collaborative, problem-based learning is the direction proposed, along with learning to think and actively implement the acquired knowledge in labs, including remote labs. | Understanding is often acknowledged to be an aim of learning. A teacher is not the only one who can regulate learning. Learners themselves can monitor and control their learning by developing meta-cognitive skills in remote labs. | Does not apply | | Sell, Rütümann, T., & Seiler, S. (2014). Inductive Teaching and Learning in Engineering Pedagogy on the Example of Remote Labs. <i>International Journal of Engineering Pedagogy</i> , 4(4), 12–15. https://doi.org/10.3991/ijep.v4i4.3828 |
| | Research study | Project management, solving skills | structured role-playing as a pedagogical method in 21 project teams with a total of 82 undergraduate students at Chang'an University, China, in a nine-week Building Information Modeling (BIM) capstone course. | The study finds that students can significantly improve their problem-solving skills through planning and role-specific communication during projects. | The BIM PEP helped in managing the lifecycles of their projects. It provided a platform for all project participants to communicate smoothly and collaboratively, contributed to avoiding mistakes, improving project quality, saving costs and shortening the construction period. PEP also helps with the intelligent maintenance and facilities management from the beginning to the end of building projects, while students could deepen their understanding of how planning applications can fundamentally eliminate gaps and coordinate broken information-flows among project team members. | The research sample needs to be expanded from senior-level undergraduate students to consider the different backgrounds and motivations of students. | The purpose of this paper is to improve students' problem-solving skills in civil engineering and construction management education. | Zhang, Xie, H., & Li, H. (2019). Improvement of students problem-solving skills through project execution planning in civil engineering and construction management education. <i>Engineering, Construction, and Architectural Management</i> , 26(7), 1437–1454. https://doi.org/10.1108/ECAM-08-2018-0321 |
| | Research study | Project management, computer technologies | In this paper, through the application of computer in project management related concepts are summarized, understand the relevant technology and technical characteristics, through the design and analysis of management platform, and test platform can be Reliability and stability, the platform can well meet the needs of project management, and can provide information utilization maximization for the efficiency and quality of construction projects. | Under the function of computer technology, to realize the modern management of engineering projects, we should not only pay attention to the investment of software and hardware, but also attach importance to the active participation of people, so as to form a high-quality project management team, so as to make the construction project management work more comprehensive. | In the construction project management, the use of computer technology can not only reduce the cost of project management, but also improve the quality of the project, so as to save resources and improve efficiency. | Does not apply | This paper explores the compatibility between project management and computer technologies in order to enhance the results in a construction project | Zhang, Zhu, B., & Zhang, Y. (2021). Civil Engineering Construction Project Management Based on Computer Technology. <i>Journal of Physics. Conference Series</i> , 1852(3), 32050–. https://doi.org/10.1088/1742-6596/1852/3/032050 |
| | Research study | Results from workshops PDRI checklist | Analysis of the PDRI development process from different projects of 69 professionals (30 with engineering backgrounds, 31 with architectural backgrounds, and 8 involved in planning building projects). | It is common to overlook critical steps in the scope definition process in an effort to hasten project completion. This practice can be attributed to various factors, including a lack of in-house expertise, pressure to meet project deadlines, or reluctance to allocate sufficient funds for thorough scope definition. | While the PDRI alone cannot guarantee the success of a project, it should be combined with effective business planning, alignment, and proficient project execution to enhance the likelihood of achieving project goals. | Possible biases in the data collected due to the respondent's subjective recollections. | The research assesses a practical platform or tool for addressing project-specific concerns and played a crucial role in pinpointing significant planning challenges on each project. | Cho, & Gibson, G. E. (2001). Building Project Scope Definition Using Project Definition Rating Index. <i>Journal of Architectural Engineering</i> , 7(4), 115–125. https://doi.org/10.1061/(ASCE)1076-0431(2001)7:4(115) |
| | Literature | | Analysis of 180 recent publications on | The findings reveal limited adoption of BIM in pre-existing structures. This can be attributed to the difficulties associated with significantly investing effort in converting captured building data into | Although the fast developments of BIM are promising for different construction processes, given the current state of BIM implementation in | Lack of documentation | This literature review addresses a | Volk, Stengel, J., & Schultmann, F. (2014). Building Information Modeling (BIM) for existing buildings — Literature review and future needs. |

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| DANIELA ARCINEGAS | Literature Review | Does not apply | Analysis of the recent publications on developments in BIM research. | Envision™ is collecting captured building data into meaningful BIM objects, keeping BIM information up to date, and managing uncertain data, objects, and relationships within the context of existing buildings. | Given the current state of BIM implementation in existing buildings, there are numerous complex research prospects awaiting exploration in this field. | Lack of documentation regarding technical issues. | concept always present in construction projects that is BIM. | Utility for existing buildings. Literature review and future needs. Automation in Construction, 38, 109–127. https://doi.org/10.1016/j.autcon.2013.10.023 |
| | Research study | Envision™ credits PDRI elements Envision-PDRI matrices | Manual comparison between 59 Envision™ credits and 46 PDRI elements to develop two Envision-PDRI matrices for small and large infrastructure projects. | Envision™ provides a list of sustainability requirements thus helping in early decision-making which in turn can minimize projects' change orders. | Linking the Envision™ credits with FEP can support stakeholders to improve the decision-making process of infrastructure projects. | The assessment of individual Envision™ and PDRI components can be influenced by personal judgment, as can the survey responses from stakeholders, which may reflect their personal opinions. | This paper explains how the Envision™ rating system can aid in identifying the scope definition of PDRI for infrastructure projects | Rahat, Ferrer, V., Pradhananga, P., & ElZomor, M. (2022). Developing an effective front-end planning framework for sustainable infrastructure projects. International Journal of Construction Management, ahead-of-print (ahead-of-print), 1–18. https://doi.org/10.1080/15623599.2022.2105282 |
| | Research study | Results from weighting workshops | Design of a set of elements assessing the efforts to develop a front-end planning tool specifically for small projects. | SIPs can progress to the detailed design and construction stages with slightly reduced scope definition compared to a large industrial project, though not to a significant extent. | If consistently and accurately applied, proficient front-end planning methods can significantly enhance project performance. | Limitations in its application (works mainly in the industrial construction sector). | This research provides the explanation of the creation and testing of an innovative front-end planning tool for SIPs, filling a gap where a similar tool was previously absent. | Collins, Parrish, K., & Gibson, G. E. (2017). Development of a Project Scope Definition and Assessment Tool for Small Industrial Construction Projects. Journal of Management in Engineering, 33(4), 4017015–. https://doi.org/10.1061/(ASCE)IME.1943-5479.0000514 |
| | Research study | Results from 40 pilot projects | Analysis on the importance of scope definition and its direct impact on project success emphasizing in the change in the industry to project environment. | Although PDRI was created for industrial construction projects, similar tools can be developed for other project management applications. | When the implementation of PDRI is effective, project success is more likely to happen since it reduces the probability of failure that comes from poor scope definition. | Does not apply | This research provides a lot of data related to the implementation of PDRI in different pilot projects that can be carefully analyzed. | Dumont, Gibson, G. E., & Fish, J. R. (1997). Scope Management Using Project Definition Rating Index. Journal of Management in Engineering, 13 (5), 54–60. https://doi.org/10.1061/(ASCE)0742-597X(1997)13:5(54) |
| | Research study | Data from different projects Input from professionals | Data from different completed or in-process projects was analyzed to find their PDRI assessment scores. | Projects with a better grasp of early scope definition elements tend to achieve better project outcomes. In the realm of infrastructure projects, those with low PDRI scores (indicating well-defined scopes) performed better than projects with high PDRI scores. | A methodical approach to the Front-End Planning (FEP) process has the potential to reduce risk and enhance project results. | More research is needed regarding the efficacy of infrastructure planning issues . | This research identifies the FEP elements that are critical to infrastructure projects. | Bingham, & Gibson, G. E. (2017). Infrastructure Project Scope Definition Using Project Definition Rating Index. Journal of Management in Engineering, 33(2), 4016037–. https://doi.org/10.1061/(ASCE)IME.1943-5479.0000483 |
| | Research study | Case study | Proposal of a building information modeling (BIM) based building design optimization method to facilitate designers to optimize their designs and improve buildings' sustainability. | The method proposed can enlarge the searching space for optimal design solutions and shorten the processing time for optimal design results. | The case study conducted proved that the method studied is more reliable, effective and efficient than the traditional methods used in buildingd' design and sustainability. | Multi-objective problems (i.e. LCC minimization and LCCE minimization) | This paper proposes a new method for buildings' design that takes into account the BIM foundations, which is useful to determine its scope and its different applications. | Liu, Meng, X., & Tam, C. (2015). Building information modeling based building design optimization for sustainability. Energy and Buildings, 105, 139–153. https://doi.org/10.1016/j.enbuild.2015.06.037 |
| | Research study | Online survey | Assessment the state of BIM and its feasibility in Uganda's construction industry by analyzing an online survey from 162 registered Architecture, Construction, and Engineering professionals. | A significant majority of respondents (71.9%) possess little to no familiarity with the concept and procedures associated with BIM. Moreover, the results suggest that knowledge of BIM remains generally restricted. | The implementation of BIM in Uganda's construction sector is currently in its early stages. To promote wider adoption of BIM in Uganda, our research suggests a collaborative initiative aimed at educating professionals about the principles, advantages, and practical applications of BIM. | It exclusively targeted Architecture, Engineering, and Construction industry professionals, excluding professionals who are still at the graduate level or not registered. | This paper discusses the implementation and use of BIM in a different country that can be analyzed | Acheng, Kibwami, N., Mukasa, T. J., Odongkara, B. B., Birungi, R., Semanda, J., & Manga, M. (2023). Building information modelling adoption in Uganda's construction industry. International Journal of Construction Management, 23(13), 2185–2208. https://doi.org/10.1080/15623599.2022.2047278 |
| | Research study | Questionnaire | Identification the importance of FEP and its impact on project outcomes in order to encourage more organizations in Singapore to practice and benefit from it. | Just approximately 44% of the surveyed companies implemented Front-End Planning (FEP) in their projects. | About 40% of surveyed firms and projects used Front-End Planning (FEP), mainly based on project size and budget. Despite this, all companies recognized FEP's value in improving project performance, potentially cutting schedules and costs by up to 15%. | The survey results may predominantly reflect contractors' viewpoints, as the study focused on relatively small building projects, limiting the generalizability of the findings. | This paper shows the importance of BIM and FEP in construction projects and more specifically, in a developed country. | Hwang, & Ho, J. W. (2012). Front-End Planning Implementation in Singapore: Status, Importance, and Impact. Journal of Construction Engineering and Management, 138(4), 567–573. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000456 |
| | Literature review | Does not apply | This paper discusses the development, constraints, and recent expansions of EVM (Earned Value Management). | It is evident that there are persistent limitations in Earned Value (EV), preventing it from attaining universal recognition as a best practice. | There is a need to create extensions of EV that can offer a spectrum of potential values for the final project cost and schedule. | Earned Value Management has not been universally accepted or adopted in all projects | The study discusses an important concept (EV) and presents its different and recent expansions. | Nizam, & Elshannaway, A. (2019). Review of Earned Value Management (EVM) Methodology, its Limitations, and Applicable Extensions. Journal of Management & Engineering Integration, 12(1), 59–70 |
| | Research study | PDRI / FEP | Comparison between small and large infrastructure projects during FEP, and choosing the correct PDRI tool to each kind of project. | Definition of a small and large infrastructure project through surveys and ranking of 16 characteristics that differentiate both types of infrastructure projects. These resulted in identifying the total installed cost (TIC) to be the main differentiator between small and large infrastructure projects, with small infrastructure projects having a TIC cap of \$20 million. Qualitative and quantitative similarities and differences between both PDRI tools. | The analyses show that small and large infrastructure projects require similar levels of project definition during FEP to support predictable performance outcomes, confirming that the management of such projects requires selecting the appropriate PDRI tool prior to its implementation. | The survey used to define small projects included 47 respondents, a relatively small sample. The survey focused on small projects and did not request that respondents provide data about what constituted a large project. | The study distinguishes between the two PDRI's in terms of their structure, content and weight of the elements, most critical planning elements, and target score. The comparison helps project teams to improve project planning and manage project risks by focusing on specific project definitions or identifying elements that may not need to be thoroughly investigated during FEP. | ElZomor, Burke, R., Parrish, K., & Gibson, G. E. (2018). Front-End Planning for Large and Small Infrastructure Projects: Comparison of Project Definition Rating Index Tools. Journal of Management in Engineering, 34 (4). https://doi.org/10.1061/(ASCE)IME.1943-5479.0000611 |
| | Research | System dynamic (SD) | Analysis of the PDRI-SD technique to assess the brief clarity and its influence on project cost | Slightly improving clarity during the initial briefing process has the potential to substantially reduce | The significance of early-stage clarity in project definition cannot be overstated, as it lays a solid | Does not apply | This research presents a useful technique to measure the impact of | Vahabi, Nasirzadeh, F., & Mills, A. (2023). Assessing the impact of project brief clarity using project definition rating index tool and system dynamic. |

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| WILLIAM GOMEZ | study | approach PDRI data | the orientation and its influence on project cost and duration. | unexpected delays and cost overruns during the detailed design and construction phases. | foundation for efficient project execution, reduced risks, and ultimately, project success. | Does not apply | lack of brief clarity on project cost and time performance. | Engineering, Construction, and Architectural Management, 30(2), 697–713. https://doi.org/10.1108/ECAM-07-2021-0618 |
| | Research study | front-end planning (FEP) | Comprehensive literature review of 83 papers related to front-end planning. | 7 key themes of FEP: project life cycle, project planning and front-end planning; (2) the significance of front-end planning; (3) front-end planning organization management; (4) front-end planning phases; (5) front-end planning implementation and practices; (6) challenges in front-end planning implementation; and (7) directions for future research. | Effective FEP implementation is one of the most important issues that employers and project managers must address. This paper also highlights the differences between project planning and FEP. Also, it presents alternative FEP phases. | Does not apply | This research present useful information about FEP and its implementation. Also, it shows that FEP implementation needs to be effective and efficient. | Hansen, Too, E., & Le, T. (2018). Retrospective look on front-end planning: A comprehensive literature review of 30 years of research. International Journal of Construction Supply Chain Management, 8(1), 19–42. https://ijcscm.com/menu-script/index.php/ijcscm/article/view/42 |
| | Case study | Earned Value Management System (EVMS) | This paper introduces an earned value management system that allows electrical contractors to monitor construction progress, perform forecasts on the project, uncover problems occurring on-site, and respond to problems in the project as early as possible. | Using an earned value management system can help electrical contractors improve project control by monitoring construction progress, detecting problems early, and responding to them in a timely manner. | The case study presented in this paper shows that using an earned value management system can help detect cost overruns and schedule slippages early in the project, which can save time and money. | Does not apply | This research present information about Earned Value Management System (EVMS) and how it can improve project control/management and avoid potential profit loss. | Hanna. (2012). Using the Earned Value Management System to Improve Electrical Project Control. Journal of Construction Engineering and Management, 138(3), 449–457. https://doi.org/10.1061/(ASCE)JCO.1943-7862.0000426 |
| | Research study | Earned Value Management System (EVMS) | This work investigated the state of practice of EVMS. This paper identifies challenges facing practitioners, critical EVMS subprocesses, and key EVMS environment factors, based on a large survey of 294 expert respondents | The responses from the survey helped craft an agreed-upon set of definitions for EVM, EVMS, EVMS maturity, and EVMS environment that are all provided in this paper. Top factors that impact the EVMS environment are: organizational culture; efficient EVMS development process; leadership's past EVMS experience; effective and accountable leadership; and quality and level of data available. | Leadership attitude toward EVMS was found to be the most critical EVMS challenge, by a wide margin. Comparing different perspectives, the data showed that project/program owners consider EVM implementation costs to be a major challenge, while contractors and consultants consider adequate calendar time needed for preparing EVMS to be a critical EVMS environment factor. | The scope of the survey was intentionally limited to capture the issues at the system macro-level (which is where the gap is) rather than the micro-level with in each subprocess (e.g., estimating, scheduling, and so on, where the literature is a lot richer). | This paper contributes to the engineering management body of knowledge by identifying the most important subprocesses and factors of a high-performing EVMS applied to a diverse array of complex projects and programs (e.g., aerospace, defense, construction, software, etc.) and uncovering corresponding key challenges. | Aramali, Gibson, G. E., El Asmar, M., & Cho, N. (2021). Earned Value Management System State of Practice: Identifying Critical Subprocesses, Challenges, and Environment Factors of a High-Performing EVMS. Journal of Management in Engineering, 37(4). https://doi.org/10.1061/(ASCE)ME.1943-5479.0000925 |
| | Research study | Project management, Sustainable construction | The objective of this paper is to suggest specific modifications to conventional building practices to optimize the delivery of cost-efficient green building projects. | The research results show that greening project management practices can add significant value to a sustainable construction project while delivering it within acceptable cost constraints. | A detailed analysis using matrix present specific adjustments to traditional project management practices, with a premise that a green project improves its chances for financial success if a cross-discipline team is involved at the earliest stages and throughout the project. | Does not apply | This paper presents information about project management, more specifically about green project management for sustainable construction. That is important to optimize the construction of buildings. | Robichaud, & Anantatmula, V. S. (2011). Greening Project Management Practices for Sustainable Construction. Journal of Management in Engineering, 27(1), 48–57. https://doi.org/10.1061/(ASCE)ME.1943-5479.0000030 |
| | Research study | Project management, Maturity models | The present study thus examined the influence of time, cost, and quality management maturity on performance indices of building construction projects in Myanmar. The study further assessed how maturity in time, cost, and quality varied between public and private construction organizations. | Positive relationship between project management maturity and project performance. Specifically, a higher time management maturity contributed to greater time performance, and elevated cost management maturity projected higher cost performance. The study could not find a significant relationship between quality management maturity and quality performance. | The results further revealed that the average time management maturity of public construction organizations was significantly higher. Still, the average cost and quality management maturity were considerably lower than that of private construction organizations. | Does not apply | This paper presents information about how maturity models can be helpful as a tool for performance enhancement in construction project settings | Htoo, Dodanwala, T. C., & Santoso, D. S. (2023). Project Management Maturity and Performance of Building Construction Projects in Myanmar. Practice Periodical on Structural Design and Construction, 28(1). https://doi.org/10.1061/PPSCFX.SCENG-1192 |
| | Research study | Project management, developing countries | This study examines the combined effect of six factors that are commonly signaled in the project management literature as determinants of successful project management in construction projects. | The findings support the initial intuition about the existence of distinct pathways, suggesting that there is no unique formula, but that different situations (i.e., combinations of factors) might require the adoption of diverse project management practices. | Based on the resources and the capabilities of each project, project managers should select the route that best fit with the specificities of each of their projects. Because construction projects in DCs, although having a similar structure and pattern, tend to be heterogeneous in nature and respond to different interests and needs. | The empirical application of this study considered the case of only one country, Ghana. | This research stems from adding to the project management body of knowledge the understanding of how a combination of factors can assist construction engineers and project managers to plan and implement successful construction projects in DCs. | Amoah, Berbegal-Mirabent, J., & Marimon, F. (2021). Making the Management of a Project Successful: Case of Construction Projects in Developing Countries. Journal of Construction Engineering and Management, 147(12). https://doi.org/10.1061/(ASCE)JCO.1943-7862.0002196 |
| | Case study | Construction management, developing countries | In this study, a survey of practitioners in the Cambodian construction industry was conducted to determine their perceptions of CM and the most important CM function. | According to the analysis of data from 146 surveys, the study found that safety management is the most important CM function. Process control management and quality management were ranked the second- and third-most important CM functions. | Considering that the problems faced by developing countries with regard to the construction industry are similar, this study can help developing countries prioritize CM functions to develop training programs, laws, and regulations that improve their construction industries. | It did not include investigation on the construction practices implemented in the construction industry in Cambodia. Thus, it was incapable of explaining why and how safety management was perceived as the most important CM function. | This study presents information about construction management and the most important functions in a developing country such as Cambodia. | Kang, Jin, Z., Hyun, C., & Park, H. (2018). Construction Management Functions for Developing Countries: Case of Cambodia. Journal of Management in Engineering, 34(3). https://doi.org/10.1061/(ASCE)ME.1943-5479.0000609 |

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| | Research study | Building information modeling (BIM) | This study investigates the critical success factors (CSFs) of BIM implementation in developing countries where BIM is fairly new to the construction industry. In this respect, a questionnaire survey is designed and administered to both public and private sector participants in Turkey. | The results reveal the three most important factors as (1) availability of qualified staff, (2) effective leadership, and (3) availability of information and technology. Also the results indicate that the underlying factors for the 16 CSFs are human-related, industry-related, project-related, policy-related, and resource-related factors. | The findings of this study can be beneficial for guiding senior managers of construction companies and BIM consultants in developing countries for a better implementation process. | Does not apply | The study are expected can provide a better understanding of the essential elements of BIM implementation and guide the industry practitioners in developing proper strategies for effective management of the implementation process. | Ozorhon, & Karahan, U. (2017). Critical Success Factors of Building Information Modeling Implementation. Journal of Management in Engineering, 33(3), 4016054–. https://doi.org/10.1061/(ASCE)ME.1943-5479.0000505 |
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