Turkish Online Journal of Qualitative Inquiry (TOJQI) Volume 12, Issue 6, June 2021:167-179

#### Research Article

## Common attributes influencing PMO practices in UAE Construction Industry

Maitha Taher Saleh Almansoori<sup>1</sup>, Ismail Abdul Rahman<sup>2\*</sup>, Aftab Hameed Memon<sup>3</sup>

### **Abstract**

This paper explores the attributes influencing the Project Management Office (PMO) exercise in the UAE construction industry. A qualitative mode of data collection was used to record the perception of the experienced practitioners involved in construction works was collected with the help of a structured questionnaire form. A questionnaire form was devised based on the 30 common attributes influencing the PMO identified from the literature review. The attributes were classified into three categories: resource management containing 12 attributes, project management having ten attributes, and organizational culture containing eight attributes. The relevancy of these attributes with the construction industry of UAE was assessed based on a 5-point Likert scale. Statistical analysis of the data revealed that 28 of the 30 investigated attributes are relevant to the construction industry of UAE. The attribute Implementation period and plan challenge in the category resource management and Reports, data entry, and dashboards challenge in project management are found irrelevant. Besides these, the practitioners highlighted that all the performance indicators used for investigation, i.e. Objectives of implementation, Goal/Aim of implementation and Key performance indicators (KPIs) are relevant for PMO and should be emphasized for achieving successful projects. These findings point out that the attributes should be considered proactively for observing the benefits of PMO in the construction industry of UAE.

**Keywords:** PMO, influencing attributes, construction industry, UAE

<sup>&</sup>lt;sup>1</sup>Faculty of Technology Management and Business, UniversitiTun Hussein Onn Malaysia, Parit Raja, Batu Pahat, Johor, MALAYSIA

<sup>&</sup>lt;sup>2</sup>Faculty of Civil Engineering and Built Environment, UniversitiTun Hussein Onn Malaysia, Parit Raja, Batu Pahat, Johor, MALAYSIA, ismailar@uthm.edu.my

<sup>&</sup>lt;sup>3</sup>Department of Civil Engineering, Quaid-e-Awam University of Engineering, Science and Technology, Nawabshah, Pakistan, aftabm78@hotmail.com

### Introduction

The concept of Project Management Office (PMO) was introduced a century ago to manage complex projects in organisation. In the 1930s, the first recorded PMO is by the United States (U.S.) Army Air Corps to monitor the development of aircraft. The PMO was then structured by the U.S. military during the 1950s in complex missile management through System Program Offices (SPOs) to govern the entire project involving training, equipment support, warhead, and logistics support [1]. In the 1980s, the PMO was first exploited in another sector, such as the construction industry, primarily boosted by the emergence of computer technology [2]. In the Middle East, the United Arab Emirates (UAE) oil industry has been the major catalysts towards its economic growth. Given the UAE continued dependence on oil, the government shifting its focus towards investment in large-scale construction projects to make the city of Dubai the ultimate tourist destination [3]. Thus, the authorities are working to implement PMO for its world-class construction projects. This can only be achieved when the right measures are taken to tackle the challenges that may arise due to the PMO implementation. Owners of large construction projects in the UAE are demanding on record time completion, leading to an increase in the risks involved. Such demands put extra pressure on contractors, engineers, and designers, which could ultimately be better managed through the PMO.

Through proper PMO implementation, the UAE construction industry aims to enhance profitability and quality of projects by eliminating inefficiency and waste of resources. However, the main challenge of PMO in UAE is the lack of well-published protocols and standards that are widely accepted for use during operations of construction projects. Most clients demand the use of PMO in their projects even though they do not understand what it means and the implications to finances and quality [4]. Furthermore, there is a global movement in the construction industry championing the adoption and implementation of the PMO. Therefore, the UAE construction industry must catch up with the worldwide market in implementing PMO across all projects being undertaken. Its adoption is the perfect initiative to monitor various projects to guarantee proper coordination and efficiency through construction.

PMO approaches can generally be applied in the management of construction projects, but not all of them result in the successful delivery of set objectives and goals such as completion schedules [1]. The most fundamental factors in PMO implementation are management experience, size of the project and type of organisation [5]. Several studies have suggested that some specific factors are necessary when integrating a successful PMO, including clearly stated objectives, senior management support, clearly defined plan, and good communication [6].

The continued advancement due to globalization clearly depicts why a country such as the UAE investing billions of dollars in construction projects. Since there is limited research on PMO in construction [5], it has made it difficult for organisations to commit financially in large projects through PMO tools and processes. It does not guarantee efficiency and profitability in terms of time and resources. Hence, this study intends to investigate and

assess attributes influencing PMO practices and the performance in UAE construction organisation.

#### **Literature Review**

The project Management Office (PMO) is a department in any organisation that establishes the standards and practices for implementation in the organisation during the operation of any project. PMO acts as a central control point for both the project and senior management to adopt professional practices during project management. PMO is implemented in organizations to bring about various improvements in governance, planning of resources, and managing project practices and measurement. PMO creates working standards to practice in the projects [5] and serves different functions for different organisations [3]. PMO is a tool used for coordination within the organization. Unfortunately, PMO is not too much popularized in the construction project. Several attributes influence the implementation of PMO in construction industry. Several researchers have highlighted the challenges faced in implementing PMO for any project. Broadly, the attributes influencing PMO practices in the construction industry are classified into resource management, project management, and organizational culture.

Resource management is the allocation of resources and follow-up activities to obtain project results in the required time frame [7]. It is one of the complex functions in construction projects [8]. Construction works are resource-driven and for success, appropriate numbers of resource must be made available [9]. Resource shortages can plague managers' ability to deliver project successfully. Thus, understanding the resource capacity and skillsets within the organisation gives the ability to balance demand and apply the right resources at the right time [10]. Multi-project resource management is entirely different because it solves resource conflicts among different projects and achieves optimal allocation of limited resources [11]. Several attributes related to resource management influence the practising PMO in construction projects, as in table 1.

**Table 1: Resource Management Related Attributes** 

Resource Management Attributes Influencing PMO practices	References
Inconsistency of PMO resource	[12] [13] [14]
Inexperience PMO leadership	[15] [16] [17] [18]
Unskilled project management personnel	[19] [20] [21] [22]
Inability to identify soft skills for PMO personnel	[23]
Poor strategies	[24]
Lack of training	[25]
Inability to encourage and gain motivation	[26]
Lack of PMO functional tools	[12] [13] [14]
Lack of funds	[27] [28] [29]
Selection of PMO manager	[30]
Lack of professional staff	[31]

On the other hand, Project management is stereotypically discussed concerning completing project-related responsibilities within a specific period border in addition to budget [32]. It is

considered the application of planning, organising, and managing resources to successfully complete specific project goals and objectives [33]. Project management is widely used to address the innovative administrative challenges besides organisation situation, where intricacy, vagueness, and haziness remain the regulation. The four significant project management problems are undefined goals, change in scopes, improper risk management, and impossible deadlines [34]. Different project management related attributes identified from the literature are presented in table 2.

**Table 2: Project Management Related Attributes** 

<b>Project Management Attributes Influencing PMO practices</b>	References
Conflict over project management ownership	[35] [36] [37] [38]
Lack of top management support	[12] [39] [40]
Additional administrative workload	[41] [42] [43]
Poor communication strategy	[44]
High bureaucracy	[45]
Poor integration of organisational function	[46]
New procedures and process challenge	[47] [48]
Selection of PMO system	[49]
Inaccurate information reporting	[23] [50]

Organisational culture is essential aspect for experiencing creating company's competitive advantage to business environment. Organisational culture is a reflection of the basic assumptions shared by members of a group, which defines the group's view and its environment as well as its way of performing daily activities [51]. There are four types of organisational culture: clan, adhocracy, hierarchy, and market [52]. Clan culture focuses on sharing values among people, emphasizing teamwork and empowerment, and developing an environment that stresses human relationships. Adhocracy culture emphasizes adaptive, flexible, and innovative characteristics in organisations. The hierarchy-type culture is focused on its operations and seeking a high degree of integration. Market culture is result-oriented organisation towards profitability and productivity. Organisational culture is important as it directs the decisions and behavior of management and employees and the main instrument of strategy implementation. The most robust organisational control system determines the organisation's image, and integrates the various subsystems of the organisation. Different attributes influencing organizational culture in PMO system are shown in table 3.

**Table 3: Organisational Culture Related Attributes** 

Organisational Culture Related Attributes Influencing PMO practices	References
Resistance to change	[53] [54]
Lack of a working organization culture	[53]
Inefficient change plans	[55]
Unproductive/ inappropriate changes	[56]
Lack of trust	[57] [58] [59] [60]

Clarity on degree of control/ influence of PMO	[61]
Political challenges	[62] [63] [64]

## **Research Methodology**

In this study questionnaire survey was used as mode of data collection. The questionnaire is a tool for acquiring information on knowledge and perception from targeted respondents. The principal requirement of questionnaire format is that questions are sequenced in a logical order [65] to ensure that respondents understand the purpose of the research and carefully answer questions [66]. For this study, questionnaire form was designed in accordance with the guidelines devised by [67]. The prime goal of this survey to examine the attributes which influence the PMP practices in construction projects of UAE. The questionnaire for this study was developed based on 30 common attributes influencing PMO practices, as discussed in the literature review section. The respondents' perception regarding the attributes with respect to the investigation goal was collected with the help of Likert scale. Likert scale was originated by Rensis Likert, an American social psychologist, in 1932 [68]. Likert scale is a psychometric scale that has multiple categories from which respondents choose to indicate their opinions, attitudes, or feelings about a particular issue [69]. The original Likert scale included five symmetrical and balanced points. It has been used with different measurement ranges in terms of a number of response options from 2-points to 11-points Likert scale [70]. Likert scale does not collect only simple responses with yes or no but also allows the respondents to indicate the degree of opinion. The Likert scale adopted in this study is in accordance with recent articles published related to construction studies that used 5-points Likert scale to assess the relevancy of the attributes with respect to the UAE construction industry, the scale adopted in this case is presented in table 4.

**Table 4: 5-points Likert scale** 

	Likert scale								
	1	2	3 4 !						
Level/Degree	Strongly not relevant	Not relevant	Neither not relevant nor relevant	Relevant	Strongly relevant				

## **Results and Discussion**

Data collection task was performed with the help of a structured questionnaire survey to validate the attributes influencing PMO. Questionnaire survey was developed based on the common attributes identified from literature. For qualitative data collection, the number of samples is 10 to 30 [71] [72] [73]. Other researcher work highlighted that at least 12 samples are required for data validation [74]. In this study, 18 samples of data were collected from the various stakeholders and the characteristics of the respondents are summarized in table 1 below:

**Table 1: Characteristics of the Respondents** 

Catagory	Items	Numbers of	Percentage of
Category	Items	respondents	respondents
Academic	Master degree	11	61.1%
qualification	Doctor of philosophy	7	38.9%
	Less than 5 years	1	5.6%
	5 to 10 years	3	16.7%
Working	11 to 20 years	7	38.9%
experience	21 to 30 years	4	22.2%
	31 to 35 years	1	5.6%
	More than 35 years	2	11.1%

Table 1 depicts that 61 per cent of the respondents have obtained a master degree while 39 per cent of the respondents are PhD holder. These respondents have vast experience of handling construction projects where fourteen of eighteen respondents have experience of more than ten years while only 4 respondents have experience of less than five years. The above characteristics testify that the respondents are qualified for data collection to understand the attributes of the PMO. Hence, the collected data was further analyzed statistically, and the findings are discussed in the following sub-sections.

## 4.1 Reliability of the data

Reliability is the internal consistency of research instruments [75]. It is the way to determine the quality of research instrument, and it refer to the extent to that test scores are free of measurement error [76]. For assessing reliability, the widely used method is Cronbach's alpha coefficient. Its value ranges between 0 i.e. the lowest internal consistency to 1 i.e. the highest internal consistency [77]. The measure is considered reliable if Cronbach's alpha value equals or exceeds 70% [78]. Cronbach Alpha value for the indicators in this study was computed with the help of SPSS software package, as presented in table 2.

Table 2: Reliability test of the data

PMO performance	e indicator	Number of item	Cronbach's alpha	Remark
		3	0.700	Acceptable
Factors	Resource management	12	0.946	Excellent
	Project management	10	0.927	Excellent
implementation	Organisational culture	8	0.854	Good
Implementation	Reliability for total item		0.968	Excellent

Table 2 demonstrates that the Cronbach's alpha value for the 3 categories of the attributes of PMO is 0.700, which indicates internal consistency the categories is acceptable, while the combined alpha value for all 30 attributes influencing the PMO implementation is 0.968 which indicates that the consistency level of the attributes is excellent. Similarly, the

cronbach Alpha value for attributes in each category is also above 0.7 i.e. the internal consistency of the attributes of each category is satisfactory.

# 4.2 Relevancy analysis of the attributes

The relevancy of the attributes was evaluated based on five-point scale as 1 for strongly not relevant, 2 for not relevant, 3 for neither not relevant nor relevant, 4 for relevant, and 5 for strongly relevant. The experts selected the level of relevancy for PMO performance indicators as well the attributes in various categories of PMO attributes to indicate the relevancy with respect to UAE construction industry. The data was analyzed with mean value and the relevancy level for PMO performance indicators is presented in table 3.

Frequency according to PMO performance indicator Likert scale Mean Remarks 3 4 1 2 5 2 7 Objectives of implementation 0 0 9 4.39 Relevant Goal/Aim of implementation 0 2 6 10 4.44 Relevant 0 Key performance indicators (KPIs) 0 1 2 3 12 4.44 Relevant

Table 3: Relevancy of items in PMO performance group

Table 3 depicts that the mean score of all the 3 PMO performance indicators is in the range of 4.39 to 4.44. Based on Likert scale and level or degree of relevancy used for data collection scale of larger and equal to four (≥ 4.00) is considered relevant. Thus, these results indicate that the considered PMO performance indicators are relevant to UAE construction scenarios. Data for attributes influencing PMO practices were also analyzed with mean value, and the results are presented in Table 4.

Table 4: Results of pilot study onfactors affecting PMO

Group	Factors affecting PMO implementation	Frequency according to Likert scale		according to Likert scale		Mean	Remarks	
	30.40	1	2	3	4	5	4.4.4	<b>D</b> 1
	Inconsistency of PMO resource	0	1	3	7	7	4.11	Relevant
	Inexperience PMO leadership	1	2	1	5	9	4.06	Relevant
#	Unskilled project management personnel	0	2	2	5	9	4.17	Relevant
Resource management	Inability to identify soft skills for PMO personnel	1	1	1	8	7	4.06	Relevant
lane	Poor strategies	0	1	2	9	6	4.11	Relevant
e m	Lack of training	0	3	1	6	8	4.06	Relevant
ourc	Implementation period and plan challenge	1	1	4	7	5	3.78	Irrelevant
osə	Inability to encourage and gain motivation	0	1	1	6	10	4.39	Relevant
<b>X</b>	Lack of PMO functional tools	0	2	1	9	6	4.00	Relevant
	Lack of funds	0	3	0	9	6	4.00	Relevant
	Selection of PMO manager	1	1	1	8	7	4.06	Relevant

	Lack of professional staff	1	1	3	3	10	4.11	Relevant
	Conflict over project management ownership	1	1	1	5	10	4.22	Relevant
ent	Reports, data entry, and dashboards challenge	0	4	4	5	5	3.61	Irrelevant
,em	Lack of top management support	3	0	0	4	11	4.06	Relevant
nag	Additional administrative workload	0	2	5	2	9	4.00	Relevant
ma	Poor communication strategy	0	2	2	6	8	4.11	Relevant
Project management	High bureaucracy	0	2	3	5	8	4.06	Relevant
Proj	Poor integration of organisational function	1	2	1	4	10	4.06	Relevant
	New procedures and process challenge	0	3	2	2	11	4.17	Relevant
	Selection of PMO system	0	1	5	0	12	4.28	Relevant
	Inaccurate information reporting	0	4	0	4	10	4.11	Relevant
	Resistance to change	1	1	3	4	9	4.06	Relevant
ıre	Lack of a working organisation culture	0	0	3	4	11	4.44	Relevant
ultr	Inefficient change plans	0	3	3	1	11	4.11	Relevant
al c	Unproductive/ inappropriate changes	0	2	3	6	7	4.00	Relevant
ion	Lack of trust	1	2	3	1	11	4.06	Relevant
Organisational culture	Clarity on degree of control/ influence of PMO	1	2	2	2	11	4.11	Relevant
Org	Political challenges	0	2	2	3	11	4.28	Relevant
	Environmental challenges	0	0	6	3	9	4.17	Relevant

From table 4, it is apparent that 28 of 30 attributes have a mean value above 4, which mean that the practitioners consider that 28 attributes influencing PMO practices are relevant to the UAE construction industry. At the same time, the attribute *Implementation period and plan challenge* in the category resource management has a mean value as 3.78, which is below 4. Hence, this attribute is considered as irrelevant. Similarly, the attribute *Reports, data entry, and dashboards challenge* in project management are reported as irrelevant with a mean value of 3.61. These findings are useful in understanding the parameters to consider for effective implementation of PMO in getting maximum benefits and achieving successful projects in construction industry.

### Conclusion

The Project Management Office (PMO) concept is used for managing complex and large projects. In UAE construction industry also, PMO is getting popularized for managing construction activities. Several attributes influence the PMO use and effect of successful implementation of PMO. These attributes were investigated for the UAE construction industry through a questionnaire survey among experienced and highly qualified construction practitioners. The questionnaire was developed with 30 common attributes identified from the literature. The analysis of the 18 collected questionnaire forms revealed that 28 factors are relevant to the construction industry of UAE. In contrast, the attribute Implementation period

and plan challenge in the category resource management and Reports, data entry, and dashboards challenge in the category of project management are found irrelevant. Similarly, the 3 performance indicators i.e. Objectives of implementation, Goal/Aim of implementation and Key performance indicators (KPIs) are endorsed by the practitioners for adopting in PMO system to achieve a successful project in the construction industry of UAE.

### References

- Khan, A. Decent work practices indicators in the construction projects of the United Arab Emirates, (2013). International Journal of Business Excellence, 6(4), pp. 409.
- Harthi, B.A.A. (2015). Risk management in fast-track projects: a study of UAE construction projects (Doctoral dissertation, University of Wolverhampton).
- Ameri, A., & Awad, T.Z. (2016). The Roles of the Project Management Office In The Execution of the Organisations Strategic Plan.
- Van der Linde, J., & Steyn, H. (2016). The effect of a Project Management Office on the project and organisational performance: A case study. South African Journal of Industrial Engineering, 27(1), 151-161.
- Al Ahbabi, M.S.M. (2014). Process protocol for the implementation of integrated project delivery in the UAE: A client perspective (Doctoral dissertation, University of Salford).
- Too, E.G., & Weaver, P. (2014). The management of project management: A conceptual framework for project governance. *International Journal of Project Management*, 32(8), 1382-1394.
- Carrillo, J.V., Abad, M.E., Cabrera, A.S., & Jaramillo, D.H. (2010). Success factors for creating a PMO aligned with the objectives and organizational strategy. 2010 IEEE Andean Council International Conference (ANDESCON), (pp. 1-6), IEEE.
- Memon. A.H. (2005). Resource-driven scheduling: Barriers to implementation. Master Dissertation, UTM Malaysia.
- Memon, A.H., and Zin, R.M. (2010). Resource-Driven Scheduling Implementation in Malaysian Construction Industry. International Journal of Sustainable Construction Engineering and Technology (IJSCET), 1(2), pp. 77-89. ISSN: 2180-3242
- Li, X.B., Nie, M., Yang, G.H., & Wang, X. (2017). The study of multi-project resource management method suitable for research institutes from application perspective. *Procedia engineering*, 174, 155-160.
- Li, S., & Tang, L.B. (2010). Application of multi-project management in scientific research projects. *Journal of Anhui Vocational College of Electronics & Information Technology*, 9, 26-27.
- Salamah, H., & Alnaji, L. (2014). Challenges in establishing, managing, and operating a Project Management Office. *Recent Advances in Economics, Management and Development*.
- Sopko, J.A. (2015). Organizational Project Management: Why Build and Improve?. Project Management Institute.
- Emerson C., 2018. What's the difference between Project, Portfolio, and Program Management? [Online] https://www.northeastern.edu/graduate/blog/project-

- managementvs-portfolio-management-vs-program-management/ (retrieved: 26.1.2021).
- Singh, R., Keil, M., & Kasi, V. (2009). Identifying and overcoming the challenges of implementing a project management office. European journal of information systems, 18(5), 409-427.
- Tan, H.C., Anumba, C.J., Carrillo, P.M., Bouchlaghem, D., Kamara, J., & Udeaja, C. (2009). Capture and reuse of project knowledge in construction. John Wiley & Sons.
- Chee, J.Y. (2014). The implementation of project management office for property developers in Malaysia (Doctoral dissertation, UTAR).
- Almutairi, U.A.A. (2015). The Role of a Project Management Office (PMO) in Reducing IT Project Failure in Saudi Arabia. The University of Manchester (United Kingdom).
- Castaneda, J.A., Tucker, R.L., & Haas, C.T. (2005). Workers' skills and receptiveness to operate under the Tier II construction management strategy. Journal of construction engineering and management, 131(7), 799-807.
- Wahab, K.A. (2011). Satisfying the training needs of management and staff in the construction industry. Proceedings of National Seminar on Effective Contract Management in the Construction Industry, 98-107.
- Bheemaiah, K., & Smith, M. J. (2015). Inequality, technology and job polarization of the youth labor market in Europe. Technology and Job Polarization of the Youth Labor Market in Europe (June 2, 2015).
- Alhaji Ali, Z. (2016). Improving skilled workers' performance in construction projects in Nigeria (Doctoral dissertation, Universiti Tun Hussein Onn Malaysia).
- Matteson, M.L., Anderson, L and Boyden, C. (2016). "Soft Skills": A Phrase in Search of Meaning. portal: Libraries and the Academy, 16(1), 71-88.
- Hyatali, N and Fai Pun, K. (2016). Aligning Project Quality and Risks into Business Processes: A Review of Challenges and Strategies. West Indian Journal of Engineering, 38(2).
- Oliveira, C., Tereso, A., & Fernandes, G. (2017). PMO Conceptualization for Engineering and Construction Businesses. Procedia computer science, 121, pp. 592-599.
- Prasetyowati, I and Haryono, A. (2017, December). Perspective of PMO in Compliance of Madurese Ethnic Tuberculosis Patient in Tapal Kuda Regions. In 2nd Public Health International Conference (PHICo 2017). Atlantis Press
- Abdul-Rahman, H., Berawi, M.A., Berawi, A.R., Mohamed, O., Othman, M., & Yahya, I.A. (2006). Delay mitigation in the Malaysian construction industry. Journal of construction engineering and management, 132(2), 125-133.
- Assaf, S.A., & Al-Hejji, S. (2006). Causes of delay in large construction projects. International journal of project management, 24(4), 349-357.
- Cuthbert, A. (2012). The role of the project management office. PM World Journal, 1(4).
- Asif, M. (2016). Growth and sustainability trends in the buildings sector in the GCC region with particular reference to the KSA and UAE. Renewable and Sustainable Energy Reviews, 55, 1267-1273.
- Niazi, M., Mahmood, S., Alshayeb, M., Riaz, M.R., Faisal, K., Cerpa, N., Richardson, I. (2016). Challenges of project management in global software development: A client-vendor analysis. Information and Software Technology, 80, 1–19.

- Webber, S.S., & Torti, M.T. (2004). Project managers doubling as client account executives. Academy of Management Perspectives, 18(1), 60-71.
- Agundu, P., &Imegi, J.C. (2014). Domestic Debt and Strategic Financial Management Imperatives in Nigeria: Causal Diagnosis. Journal of Financial Management & Analysis, 27(1).
- Patil, G. (2016). Project management challenges. Journal of Multidisciplinary Engineering Science and Technology (JMEST), 3.
- Williamson, O.E. (1979). Transaction-cost economics: the governance of contractual relations. The journal of Law and Economics, 22(2), 233-261.
- Gardiner, P.D., Simmons, J.E.L., & Heriot-Watt Business School, Edinburgh (United Kingdom);. (1994). An Exploration of Conflict with Reference to Capital Investment Projects in the Construction Industry. Heriot-Watt Business School.
- Harmon, K.M. (2003). Conflicts between owner and contractors: proposed intervention process. Journal of management in Engineering, 19(3), 121-125.
- Jaffar, N., Tharim, A.A., & Shuib, M.N. (2011). Factors of conflict in construction industry: a literature review. Procedia Engineering, 20, 193-202.
- Project Management Institute (2008), A guide to the project management body of knowledge (PMBOK® Guide), 4th ed., Project Management Institute, Inc, Newtown Square, Pa.
- Dong, L., Neufeld, D., & Higgins, C. (2009). Top management support of enterprise systems implementations. Journal of Information technology, 24(1), 55-80.
- Shah, S. S. H., Jaffari, A. R., Aziz, J., Ejaz, W., Ul-Haq, I., & Raza, S. N. (2011). Workload and performance of employees. Interdisciplinary Journal of Contemporary Research in Business, 3(5), 256-267.
- Rajan, D. (2018). Negative impacts of heavy workload: A comparative study among sanitary workers. Sociol. Int. J, 2(6), 465-474.
- Nwinyokpugi, P.N. (2018). Workload Management Strategies and Employees Efficiency in the Nigeria Banking Sector. International Journal of Innovative Research & Development, Vol 7 Issue 1, 286-293.
- Sandhu, M.A., Al Ameri, T.Z and Wikström, K. (2019). Benchmarking the strategic roles of the project management office (PMO) when developing business ecosystems. Benchmarking: An International Journal, 26(2), 452-469.
- Fernandez, D., Zaino, Z and Ahmad, H. (2018). An Investigation of Challenges in Enterprise Resource Planning (ERP) Implementation: The Case of Public Sector in Malaysia. International Journal of Supply Chain Management, 7(3), 113-117.
- Tsaturyan, T and Müller, R. (2015). Integration and governance of multiple project management offices (PMOs) at large organizations. International Journal of Project Management, 33(5), 1098-1110.
- Hanisch, B., & Wald, A. (2011). A project management research framework integrating multiple theoretical perspectives and influencing factors. Project Management Journal, 42(3), 4-22.
- Pellegrinelli, S., & Garagna, L. (2009). Towards a conceptualisation of PMOs as agents and subjects of change and renewal. International Journal of Project Management, 27(7), 649-656.
- Karayaz, G., & Gungor, O. (2013, January). Strategic Alignment and Project Management

- Offices: Case Studies from Successful Implementations in Turkey. In 2013 46th Hawaii International Conference on System Sciences (pp. 4374-4383). IEEE.
- Morrison, D., van Dyk, J. S., & Pletschke, B. I. (2011). The effect of alcohols, lignin and phenolic compounds on the enzyme activity of Clostridium cellulovorans XynA. BioResources, 6(3), 3132-3141.
- Schein E. Organizational Culture and Leadership. San Francisco: Jossey-Bass Publishers; 1992. 418 p. ISBN: 1-55542-487-2
- Cameron K.S. and Quinn R.E., (1999). Diagnosing and Changing Organizational Culture, Addison-Wesley Publishing, New York.
- Lee-Kelley, L and Turner, N. (2017). PMO managers' self-determined participation in a purposeful virtual community-of-practice. International Journal of Project Management, 35(1), 64-77
- Dai, C., & Wells, W. (2004). An exploration of project management office features and their relationship to project performance. International Journal Of Project Management, 22(7), 523-532. doi: 10.1016/j.ijproman.2004.04.001
- Kerzner, H and Saladis, F.P. (2017). Project management workbook and PMP/CAPM exam study guide. UK: John Wiley & Sons.
- Al Khoori, A., & Hamid, S.R. (2018). Project Management Office and its Impact on UAE Public Sectors: A Literature Review.
- Paliszkiewicz, J. (2010, June). Organizational trust—a critical review of the empirical research. In Proceedings of 2010 international conference on technology innovation and industrial management (Vol. 1618).
- Starnes, B.J., Truhon, S.A., & McCarthy, V. (2010). Organizational trust: employee-employer relationships. A Primer on Organizational Trust.
- Ghazinejad, M., Hussein, B.A., & Zidane, Y.J.T. (2018). Impact of trust, commitment, and openness on research project performance: Case study in a research institute. Social Sciences, 7(2), 22.
- Al-Alawi, A.I., Al-Marzooqi, N.Y., & Mohammed, Y.F. (2007). Organizational culture and knowledge sharing: critical success factors. Journal of knowledge management. Influence and Trust of Members Within Small Firms. Management Decision, 20(1), 32-37
- Project Management Institute (2013). A Guide to the Project Management Body of Knowledge (PMBOK®), Fifth Edition, PMI.
- Santos, V and Varajão, J. (2015). PMO as a Key Ingredient of Public Sector Projects' Success Position Paper. Procedia Computer Science, 64, 1190–1199.
- Jałocha, B., Kraneb, H.P., Ekambaram, A., & Prawelska-Skrzypek, G. (2014). Key competences of public sector project managers. Procedia. Social and Behavioral Sciences, 119.
- Ahuja, H.N., Dozzi, S.P., & Abourizk, S.M. (1994). Project management: techniques in planning and controlling construction projects. John Wiley & Sons.
- Sarantakos, S. (2007). A tool kit for quantitative data analysis. New York: Palgrave Macmillan.
- McGuirk, P.M., & O'Neill, P. (2016). Using questionnaires in qualitative human geography. Oxford University Press, Australia.

- Brace, I. (2018). Questionnaire design: How to plan, structure and write survey material for effective market research. Kogan Page Publishers.
- Johns, R. Likert items and scales, 2010. URL: https://www. ukdataservice. ac. uk/media/262829/discover\_likertfactsheet. pdf.(11.04. 2018).
- Nemoto, T., & Beglar, D. (2014). Likert-scale questionnaires. In JALT 2013 Conference Proceedings (pp. 1-8).
- Taherdoost, H. (2019). What Is the Best Response Scale for Survey and Questionnaire Design; Review of Different Lengths of Rating Scale/Attitude Scale/Likert Scale. Hamed Taherdoost, 1-10.
- Isaac, S., & Michael, W.B. (1997). Handbook in research and evaluation (3rd ed.). San Diego, CA: Educational and Industrial Testing Services.
- Hill, R. (1998). What sample size is "enough" in internet survey research? Interpersonal Computing and Technology: An Electronic Journal for the 21st Century, 6(3-4).
- Maiyaki A.A., Mokhtar S.S.M. (2010). Effects of electronic banking facilities, employment Sector and age-group on customers' choice of banks in Nigeria. J. Internet Bank. Commer., 15(1).
- Van Belle, G. (2002). Statistical rules of thumb. New York: John Wiley.
- Sobral-Souza T, Lautenschlager L, Morcatty TQ, Bello C, Hansen D, Galetti M. 2017. Rewilding defaunated Atlantic Forests with tortoises to restore lost seed dispersal functions. Perspectives in Ecology and Conservation 15: 300–307
- Muijs, D. (2004). Validity, reliability and generalisability. Doing quantitative research in education with SPSS (Sage, London), 64-84.
- Sekaran, U., & Bougie, R. (2016). Research Methods For Business: A Skill Building Approach. 7th ed. John Wiley & Sons
- Thanasegaran, G. (2009) "Reliability and Validity Issues in Research" Integration & Dissemination. Vol 4 p.35-40. [Online] Available from: http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=3&sid=093b13d8-fb58-458ca2c5-761608204c7a%40sessionmgr112&hid=110 [4.8.2015]