PUBLIC PROJECT DELAY MONITORING BY IMPLEMENTATION COORDINATION UNIT

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Abstract

Malaysian government places high priority on the construction industry by allocating 60 percent from the total allocation for physical development of public project delivery. However, 113 on-going project are delayed and facing shortfalls in spending expenditure. Thus, it is important that these delay and over-budget problems being tackled by the Implementation Coordination Unit (ICU), who coordinates and monitors the implementation of the public projects. Hence, this paper is undertaken with the aim of evaluating the effectiveness in monitoring delayed pubic projects by ICU. This aim is achieved via objectives of identifying the causes of public project delay based on the monitoring by ICU, examining the monitoring tools currently used by ICU in monitoring public project delay, and proposing improvement measures for effective monitoring of the public project delay by ICU. Data was collected via document review, which is subsequently validated via questionnaire survey on the purposive sample of 16 monitoring officers at ICU and analysed via Microsoft Excel. It is found that the main causes of delayed public projects are contributed by contractor-related followed by project implementation-related, utility-related, land and site-related problems. Project monitoring systems currently used by ICU are Project Monitoring System II (PMS II) and Integrated Project and Tracking Analysis Updates (iPANTAU), which are claimed by the respondents as effective to identify and solve the problem of public project delay. The top proposed improvement measure for PMS II and iPANTAU are developing contractor score rating system based on their performance in PMS II and improve competency of monitoring officers, particularly on identifying the causes of delay before keying in the data into iPANTAU, respectively. This paper is expected to enhance the efficiency of these systems by providing accurate information needed to the stakeholders.

Keywords: Public project delay, monitoring tools, Implementation Coordination Unit, Malaysia

Introduction

Malaysia aims towards becoming a high-income advanced nation by 2020. Construction sector was the fourth important sector in Malaysia (EPU, 2010). According to Economic Planning Unit (2010), construction sector was contributed about RM327 billion or 5.2 percent from total Gross Domestic Product (GDP). Despite from that, it is reported that project deliverable performance and execution in Malaysia reduced dramatically due to poor cost and time management of the projects (Abdul Rahman *et al.,* 2012; and Endut, *et al.,* 2014).

Implementation Coordination Unit (ICU) has a huge responsibility given by the stakeholders to ensure that all development projects are carried out rapidly, effectively and delivered on time to the members of the public. However, at the end year of implementation of the Tenth Malaysia Plan (10MP), ICU (2016) reported about 113 public projects were delayed and facing shortfalls in spending expenditure about RM8.33 billion.

One of initiatives by the government to track the performance of public projects is by developing the public projects monitoring online-based system. Project Monitoring System II (PMS II) is one of the important tools in monitoring the public projects. PMS II is a centralised database for every each project and this data has been used for planning, implementation and evaluation (ICU, 2015). However, information in this system is insufficient, for example information is not updated particularly on actual performance project on the site and there is a difficulty to get the information about performance of projects on site because the bureaucracy from implementation agency (ICU, 2015).

On the other hand, Integrated Project and Tracking Analysis Updates (iPANTAU) is developed in-house as a recorded monitoring initiative by ICU and also functioned as a center database (UPP, 2014). This system enables to analyse number of projects site visit, identify causes or issues on site and number of issues that have been resolved. This system also helps the monitoring officers to detect chronology of certain problem that was identified earlier (UPP, 2014). Nevertheless, there is a lack of comprehension level between monitoring officers in using iPANTAU system, therefore a lot of problems on site did not undergo Follow Up and Follow Through action.

Aim and Objectives of Study

The aim of this paper is to evaluate the effectiveness in monitoring delayed public project by Implementation Coordination Unit (ICU). To achieve the aim of this paper, the following objectives have been identified, namely to identify the causes of public project delay based on the monitoring by ICU; to examine the monitoring tools currently used by ICU in monitoring public project delay, and to propose improvement measure for effective monitoring of the public project delay by ICU.

Literature Review

According to Contract Management in Government Procurement Volume 4 by Ministry of Finance (2014), delay is defined as delays exceeding one month or 10 percent late from the expected schedule. Delay is also a situation when the actual progress of a construction project is slower than the planned schedule or simply defined as the late completion of the projects (Serrador and Turner, 2015).

Based on Yates *et al*. (2006), there are three main types of delay that occur on construction project, namely excusable, non-excusable delays and delays concurrent. A delay that is compensable is compensable to the contractor, but non-excusable to the employer. On the other part, a delay deemed as non-excusable is compensable to the employer because it results in levying of liquidated

damages. Concurrent delays happened when more than one factor delays the project at the same time or in overlapping periods of moment (Hamzah *et al.*, 2011).

Nurul *et al*. (2016) also identified 69 low performance factors and divided these into five groups, such as (1) early investigation cases, (2) design phase, (3) contract phase, (4) construction phase and (5) upon closing phase. Othman and Ismail (2014) list out 7 categories of causes identified from 72 causes of delayed project, such as (1) client/owner, (2) consultant, (3) contractor, (4) manpower, (5) material, (6) equipment and (7) external factor. Ramanathan *et al.* (2012) concluded that the highest 5 rankings causes of delay are related to (1) owner/client, (2) contractor, (3) design-related, (4) labour/manpower and lastly (5) consultant and contractual relationship.

Basically, monitoring the public project produces a lot of information that is required by the top management to track the work progress at site. Key Performance Indicator (KPI) is also identified as a monitoring tool that measures assessment and success performance of a project (Cox *et al.*, 2003). Meanwhile, project outcome monitoring was a proactive and transparent mechanism for managing the assignment of new projects to project managers and for evaluating the performance efficiency of the completed projects and their responsible project managers (Cao and Hoffman, 2011).

On the other hand, value management in public project management was defined as a process to reduce cost at the lowest cost of the project by identifying which elements that can reduce the costs without sacrificing the quality and function of the project (UPP, 2015). Others tool are the Project Monitoring System (PMS), which can help senior project management, project directors, project managers etc., in monitoring and assessing project performance (Cheung *et al.,* 2004).

Knowledge is the important element in project management system. Liao and Qi (2009) suggested to combine project and organisation procession in the knowledge management system to articulate the linkages between technical and deployment as well as feedback on projects.

Research Methodology

This paper used triangulation method (quantitative) through document review as well as structured questions from questionnaire survey in validating the findings from document review as research methodology. This paper was conducted in five stages, starting with literature review, followed with data collection, data analysis, data interpretation and conclusion of the paper.

The second phase was data collection. To achieve the first objective in identifying the causes of public project delay based on the monitoring by Implementation Coordination Unit (ICU), data compilation on the documents review from Project Monitoring System II (PMS II) and Integrated Project and Tracking Analysis Updates (iPANTAU) was undertaken. Data analysis via Microsoft Excel followed by data interpretation were carried out. Eventually, these findings are validated via questionnaire survey on a set of purposive sample involving 16 monitoring officers at ICU and reanalysed via Microsoft Excel. This questionnaire survey involves the 5-point Likert scale of agreement (1 referring to strongly disagree to 5 which indicates strongly agree) and importance (1 referring to least important to 5 which indicates most important), following Poh (2016) who carries out research on key performance indicators (KPI) for medium size contractors in Malaysia. As for the purpose of this paper, the mean 3.5 and above signifies the level of agree and important, respectively.

As for second and third objectives of monitoring tools currently used by Implementation Coordination Unit (ICU) and proposing the improvement measure for effective monitoring to address all the delay issues particularly in public project through questionnaire, data analysis is

again undertaken via Microsoft Excel, followed by data interpretation. The last phase was reporting stage to conclude the findings of this paper.

Result and Discussion

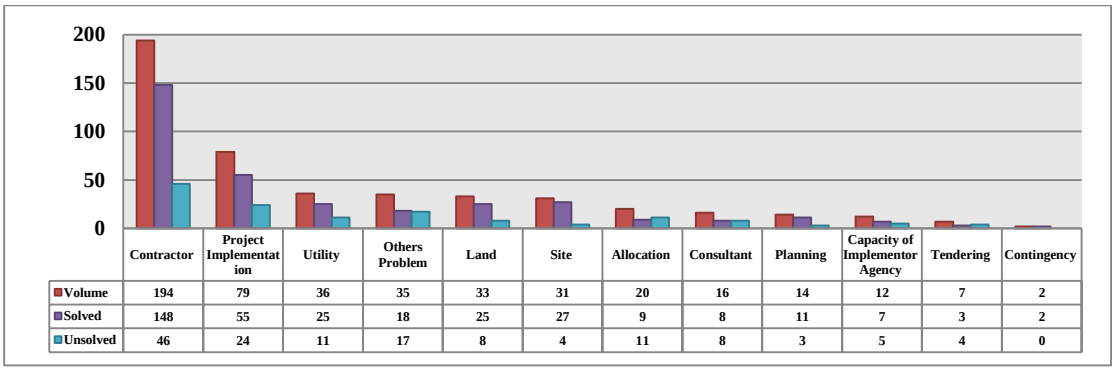
Background of the respondents

Questionnaire surveys were distributed to all 16 monitoring officers at Implementation Coordination Unit (ICU) because they are the front-line officer who are currently using the Integrated Project and Tracking Analysis Updates (iPANTAU) and have access to the Project Monitoring System II (PMS II). As collected via Section A on the Demographic Data of the questionnaire survey, the highest group participated in this study is the respondent from 30 - 39 years of age group with working experience between 1-3 years and more than 3 years. About 81 percent respondents are holding a Bachelor degree and 19 percent were holding a Master degree. Thus, with their current position having full access to PMS II and iPANTAU, they are able to answer the entire questionnaire survey reliably and honestly based on their current experience, education background and current job scope.

Identified causes of delayed public projects

In comparision with other objectives, objective 1 on the identification of the causes of delayed public projects are achieved via document reviews. Based on the documents review data from the Project Monitoring System II (PMS) and the Integrated Project and Tracking Analysis Updates (iPANTAU), the main causes of delayed public projects are summarised as shown in Figure 1.1. It is mainly contributed by contractor-related, namely lack of experience, financial issue, manpower, machineries, materials about 40.5 percent (194 public projects); followed by project implementation problem-related about 16.5 percent (79 public project), utility about 7.5 percent (36 public projects), and land problem about 6.9 percent (33 public projects) and site problem about 6.5 percent (31 public projects).

This result is also consistent with the findings by Abdullah *et al.* (2010); Ramanathan *et al.* (2012); Othman and Ismail (2014); Kalkani *et al.* (2016); and Durdyev *et al.* (2017) who reveals that the contractor-related was main causes of delayed construction projects. Thus, it is observed that, the contractors who are having financial difficulties, lack of experience, insufficient manpower, machineries and materials will be experiencing delays in delivering the public projects.



	Contractor	Project Implementation	Utility	Others Problem	Land	Site	Allocation	Consultant	Planning	Capacity of Implementor Agency	Tendering	Contingency
Volume	194	79	36	35	33	31	20	16	14	12	7	2
Solved	148	55	25	18	25	27	9	8	11	7	3	2
Unsolved	46	24	11	17	8	4	11	8	3	5	4	0

Figure 1.1: Causes of public project delay based on monitoring activities by the Implementation Coordination Unit (ICU)

Source: Integrated Project and Tracking Analysis Updates (iPANTAU) (2015)

Examination of the monitoring tools

Objective two on examining the monitoring tools currently used by Implementation Coordination Unit (ICU) in monitoring public project delay is achieved via questionnaire survey on the 16 monitoring officers. Results as shown in Figure 1.2 on the access and usage of both Project Monitoring System II (PMS II) and Integrated Project and Tracking Analysis Updates (iPANTAU) within a week demonstrated that the monitoring officers at ICU are accessing the PMS II for more than 5 times/week, that is about 44 percent and considered as highest percentage in terms of accessibility per week. The respondents also agree that PMS II helps to identify the delayed public project at average range of 3.81 (agreeable scale). In comparison with the iPANTAU, about 50 percent of respondents claimed that they use the system at about 1 - 2 times within a week to solve the problems of public project delay. They further claimed that this system is able to provide accurate information regarding the physical progress of the delayed public projects in Malaysia.

This result apparently shows that the monitoring officers in ICU only accessing the PMS II as a tool to help in identifying the delayed public project. This is significantly in line with problem statement of this paper that information in SPP II is insufficient, for example information is not updated particularly on actual performance project on the site and there is a difficulty to get the information about performance of public projects on site. There is where in tackling this problem, ICU came out with the idea to developed iPANTAU system as a database, which is, able to provide accurate information regarding the physical progress.

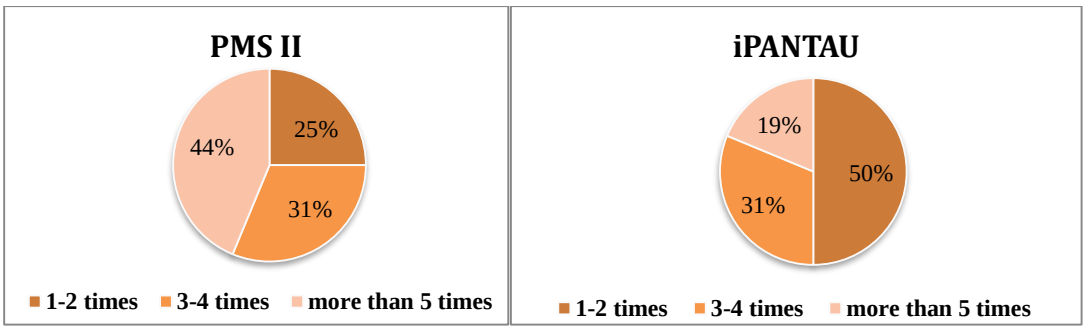


Figure 1.2: Respondents frequency in accessing the PMS II and using iPANTAU within a week

Proposed the improvement measures for effective monitoring

The respondents are also asked on their understanding of the proposes improvement measures for effective monitoring in project in Section D of the survey question as to answer the third objective. To recapitulate, this paper adopts Likert Scale of 1 to 5 (1 referring to least important to 5 which indicates most important), mean 3.5 and above signifies the level of agree. From Table 1.1, it clearly indicates that the respondents agreed with the statements in the measurement.

Table 1.1: Summary analysis for the statement of proposed improvement measures for effective monitoring by Implementation Coordination Unit (ICU)

No	Item	Frequency (%)					Mean
		ST	D	NA/ ND	A	SA	
1	Develop contractor score rating system based on their performance in PMS II	0 (0)	2 (12.5)	1 (6.2)	6 (37.5)	7 (43.7)	4.1
2	Revise the physical progress of the project based on Department of Work guidelines in PMS II	0 (0)	2 (12.5)	3 (18.7)	5 (31.2)	6 (37.5)	3.9
3	Improve competency of officer particularly on identifying the causes of delay before keying in the data into iPANTAU	2 (12.5)	0 (0)	1 (6.2)	6 (37.5)	7 (43.7)	3.8
4	Provide Extension of Time (EOT) and Liquidated and Ascertained Damages (LADs) information in PMS II	1 (6.2)	1 (6.2)	4 (25.0)	3 (18.7)	7 (43.7)	3.8
5	The system (PMS II and iPANTAU) must be user friendly	1 (6.2)	1 (6.2)	3 (18.7)	8 (50.0)	3 (18.7)	3.6

Note: LI = Least Important, NI = Not Important, NI/NI = Neither Important/Nor Important, I = Important, MI = Most Important

Conclusion

This paper has successfully achieved its aim and objectives in evaluating the effectiveness in monitoring delayed pubic projects by the Implementation Coordination Unit (ICU) as well as identifying the causes of public project delay based on the monitoring by ICU, examining the monitoring tools currently used by ICU in monitoring public project delay, and proposing improvement measures for effective monitoring of the public project delay by ICU, respectively. This paper finds that the top five causes of public project delay based on the monitoring by ICU are contractor, project implementation, utility, land and site problem; whilst the monitoring tools currently used by ICU in monitoring public project delay are Project Monitoring System II (PMS) and Integrated Project and Tracking Analysis Updates (iPANTAU).

It is also found by this paper that the top five proposed improvement measures for effective monitoring of the public project delay by ICU are develop contractor score rating system based on their performance in PMS II, revise the physical progress of the project based on Department of Work guidelines in PMS II, improve competency of officer particularly on identifying the causes of delay before keying in the data into iPANTAU, provide Extension of Time (EOT) and Liquidated and Ascertained Damages (LADs) information in PMS II and the system (PMS II and iPANTAU) must be user friendly.

Thus, effective project monitoring system is seen by this paper as helping the ICU in identifying causes the delay, monitoring the delay project and solving the problems in public projects in Malaysia. In overall, this paper has successfully proposed improvement measures to give more impact and accurate information of the projects when the monitoring officers are performing their jobs, especially in preparing the reports to the stakeholders.

References

Cao, Q., & Hoffman, J. J. (2011). A case study approach for developing a project performance evaluation system. *International Journal of Project Management*, *29*(2), 155–164. http://doi.org/10.1016/j.ijproman.2010.02.010.

Cheung, S. O., Suen, H. C. H., & Cheung, K. K. W. (2004). PPMS: a Web-based construction project performance monitoring system. *Automation in Construction*, *13*(3), 361–376. Retrieved from http://dx.doi.org/10.1016/j.autcon.2003.12.001

Cox, R. F., Issa, R. R. a., & Ahrens, D. (2003). Management's Perception of Key Performance Indicators for Construction. *Journal of Construction Engineering and Management*, *129*(2), 142–151. http://doi.org/10.1061/(ASCE)0733-9364(2003)129:2(142)

Durdyev, S., Omarov, M. and Ismail, S. (2017). Causes of delay in residential construction projects in Cambodia. *Cogent Engineering*, 4(1): 1-12.

Endut, I. R., Akintoye, A., & Kelly, J. (2005). Cost and Time Overruns of Projects in Malaysia. *ICONDA Prooceedings of the 2nd Scottish Conference for Postgraduate Researchers of the Built and Natural Environment (PRoBE)*, (2001), 243–252.

Hamzah, N., Khoiry, M. A., Arshad, I., Tawil, N. M., & Che Ani, A. I. (2011). Cause of construction delay - Theoretical framework. In *Procedia Engineering* (Vol. 20, pp. 490–495). http://doi.org/10.1016/j.proeng.2011.11.192.

Jabatan Perdana Menteri, Unit Penyelarasan Pelaksanaan. (2014). *Taklimat Pengenalan SPP II*.

Jabatan Perdana Menteri, U. P. E. (2015). *Buku Merah UPE, JPM : Langkah-Langkah Penambahbaikan Pelaksanaan Projek Pembangunan Rancangan Malaysia Lima Tahun (RMLT)*.

Jabatan Perdana Menteri, U. P. P. (2015). *Laporan Tahunan ICU 2015 : Pemangkin Pembangunan Negara*. Putrajaya.

Jabatan Perdana Menteri, U. P. P. (2015). *Pengurusan Projek Awam : Konsep Pratikal Dan Realiti*.

Liao, Y., & Qi, L. (2009). Knowledge management system in project-based organizations. In *2009 International Conference on Management of e-Commerce and e-Government, ICMeCG 2009* (pp. 156–159). http://doi.org/10.1109/ICMeCG.2009.99

Nurul, A. J., Aminah, M. Y., Syuhaida, I., & Chai, C. S. (2016). Public construction projects performance in Malaysia. *Journal of Southeast Asian Research*, *2016*(2016), 1–29. http://doi.org/10.1017/CBO9781107415324.004

Othman, A., & Ismail, S. (2014). Delay in Government Project Delivery in Kedah, Malaysia. *Recent Advances in Civil Engineering and Mechanics*, 248–254. Retrieved from http://www.syuhaidaismail.com

Poh, N. K. (2016). *Framework of Project Management Key Performance Indicators for Medium-Sized Building Construction Industry in Malaysia*.

Ramanathan, C., Narayanan, S. P., & Idrus, A. B. (2012). Construction delays causing risks on time and cost - A critical review. *Australasian Journal of Construction Economics and Building*. http://doi.org/10.5130/ajceb.v12i1.2330

Serrador, P., & Turner, R. (2015). The relationship between project success and project efficiency. *Project Management Journal*, *46*(1), 30–39. http://doi.org/10.1002/pmj.21468

Yates, J. K., Asce, M., & Epstein, A. (2006). Avoiding and Minimizing Construction Delay Claim Disputes in Relational Contracting. *Journal of Professional Issues in Engineering Education and Practice*, *132*(April), 168–179. http://doi.org/10.1061/(ASCE)1052-3928(2006)132:2(168)