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PROJECT SCHEDULE AND PRODUCTIVITY OF SELECTED TELECOMMUNICATION FIRMS IN NIGERIA

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Abstract

Project schedule is the collection of tasks, activities, duration, start dates, end dates and resources needed for the execution of projects among telecommunication firms. Projects implementation among telecommunication firms have been challenged with the productivity of employees and also project schedule management. Most telecommunication firms have recorded poor first mover advantage, competitiveness and market dominance. The study therefore examined the effect of project schedule on productivity of selected telecommunication firms in Nigeria. Cross-sectional survey research design was employed in this study. The population was ninety-four (94) project employees of the information systems (IS) department of three selected telecommunication firms. Total enumeration sampling technique was used for the study. A questionnaire was constructed, validated and administered to the respondents to collect primary data. A reliability test of the questionnaire was achieved with Cronbach's alpha reliability coefficients for the constructs and it ranged between 0.814 and 0.909. Descriptive and inferential statistics were used to analyse the data. Data analysis of the study revealed that project schedule had a positive and significant effect on productivity ($R^2 = 0.060$, $\beta = 0.145$, $t = 2.140$, $p<0.05$). The study concluded that project schedule affect productivity of telecommunication firm. The study recommended that the management of telecommunication firms should ensure proper project planning, avoidance of concurrent multiple projects implementation and improved project managers' management style are needed for improved employee productivity during projects implementation among telecommunication firms.

Keywords: Performance, Productivity, Project, Project schedule, Telecommunication

Word Count: 231

1.0 Introduction

The telecommunication industry had been one of the drivers of economies of nations around the world. Globally, the sector had been faced with project implementation challenges such as delayed projects, poor schedule management, poor product and service deliverables, limited resource availability for project implementation as well as multi-tasked employees, consistent scope creep leading to ambiguous project boundaries and unsatisfied stakeholders. These challenges inhibit performance in the industry despite its huge potential in the global economy.

The telecommunication sector in Nigeria is no exception to the global challenges which have impeded employee productivity, customer satisfaction and organisational performance during and after projects implementation. Implementation delays were experienced in the second half of 2016 and Q2 of 2017 on projects related to expansion, upgrade and software implementation (both web and mobile) and project employees spent more time on a single project than originally planned for (Akinyomi & Tasie, 2011). Ogunde, Olaolu, Afolabi, Owolabi and Ojelabi (2017) further reviewed the challenges and explained that inexperience of project manager assigned, usage of non-professionals as project managers (which usually created halo effect on project execution), lack of stakeholder involvement, usage of obsolete or sub-standard infrastructure, improper architecture that led to design errors, communication challenges and poor treatment of project employees led to poor employee productivity.

Appropriate management of project schedule, time and speed to market have been of crucial concern to the telecommunication industry and this should be balanced with the productivity of employees concerned. Where this was properly managed, it generated first-mover advantage in terms of how quickly their products were released and consumed by the market. However, where this was poorly managed, the specific firm in question, was seen to be less impactful in the economy with its products and services being delayed before they were released to the market (Bukit, Ismida, Maulana & Nasir, 2018). This was a challenge in the telecom industry in Nigeria. Also, multiple projects implementation at the same time with the same or limited number of resources have negatively impacted on service quality and productivity of telecom firms in Nigeria. These challenges did not allow for optimal project performance in the industry.

Based on the foregoing, the objective of this paper is to establish the effect of project schedule on productivity of selected telecommunication firms in Nigeria. To achieve this objective, the paper focused on the research question – "How does project schedule affect productivity of selected telecommunication firms in Nigeria?". The paper is arranged as follows: the introductory section of the paper (section one) that reviewed the background issues that led to the topic, while section two focused on the review of related literature in line with the concepts, theory, and empirics relating to the study variables. Section three was devoted to the methodology adopted for the study with specific emphasis on the population and sample size determination together with data collection. In the fourth section, the data collected were presented, summarized, analyzed and corresponding findings were discussed, while the fifth section covered the discussion, conclusion and recommendations flowing from the findings of the study.

2.0 Literature Review

Projects implementation are essential to the growth and survival of telecommunication firms especially in a competitive environment. By extension it implies that strategic change for these firms was largely delivered through multiple, simultaneous projects that were aligned with their corporate objectives. The implementation of these projects help the firms to address and coordinate

activities that cannot be handled within their operational limits and thus were often used to achieve planned goals (Berssaneti & Carvalho, 2015; Kloppenborg & Opfer, 2002; Project Management Institute, 2014). The application of project management is used by these firms to focus on project success dimensions and their impact on achieving project success. In particular, the successful accomplishment of project schedule management in supporting employee productivity, timely delivery of project tasks and overall achievement of firm goals are critical to these firms (Berssaneti & Carvalho, 2015; Kaczorowska, Motyka & Słoniec, 2019). As part of the strategies towards timely delivery of projects, which hitherto has been a challenge for telecommunication organisations in Nigeria, project schedule management and employee productivity are crucial in achieving planned objectives of these firms

David, Cristobal and Bruce (2013); Ssempebwa, (2015) defined project schedule as a specific activity with time-phased works on resources to tasks that satisfies the requirements and constraints. It involves the process of arranging controlling work activities needed to accomplish a task or project deliverable. It consists of a list of times at which possible tasks, events, or actions are intended to take place, or of a sequence of events in the chronological order in which such things are intended to take place. In another definition, Project Management Institute (2014) defined project schedule as the collection of tasks, activities, duration, start and end dates and resources needed for the execution of entire project as a whole. Project schedule has several techniques that are used in assisting project managers and project stakeholders plan, break down and organise project activities into granular details to aid the management of such projects (Siti, 2014). They include Program Evaluation and Review Technique (PERT), Work Breakdown Structure (WBS), Critical Path Method (CPM) and Gantt Chart (GC).

On the other hand, Aftab and Javeed (2012) defined productivity as a ratio used to measure how well a firm converts input resources (labour, materials, machines) into good and services, while Pekuri, Haapasalo, and Herrala (2011) in their research defined productivity as the relationship between output produced by a system and quantities of input factors utilized by the system to produce that output. The work further explained that the output can be the outcome of a process, whether a product or service, while input factors consist of any human and physical resources used in a process. Thus explaining that before a result can be achieved by an organisational process, input factors such as human, machine, equipment is needed required in appropriate quantities to achieve set goals and objectives. Employee productivity however, is an assessment of the efficiency of a worker or group of workers and this efficiency directly affect the firm's profit (Sharma & Sharma, 2014). A worker's productivity is measured relative to the average output of employees performing the same task under the same condition and it can also be measured based on the measurable deliverables or tasks, an employee produces within a timeframe. Hanaysha (2016), also defined employee productivity as an assessment of the efficiency of a worker or group of workers that directly affects the firm's profits and it is usually evaluated in terms of the output of an employee in a specific period of time. These definitions explained further that employee productivity has a relationship with timelines, schedule and the output produced.

Empirically, Dziekoski (2017) examined the effect of project managers' competencies in managing employees and found a positive and significant relationship between project schedule and productivity of employees. The research was also able to establish that the management style and professionalism of the project manager impacts productivity of project employees. Similarly, Awad, Aviad, El Asmar, and Taylor (2013) investigated the impact of crew scheduling on project performance and showed the effect of project schedule on productivity to be positive and

significant. In like manner, using survey research design and correlational analysis, Yaghootkar and Gil (2012) studied the effects of schedule-driven project management in multi-project environments while Aftab, Ismail, Ismaaini, and Noor (2014) studied time management practices in large construction projects. All of these studies also recorded a significant of project management dimensions on productivity.

Further, Ameh and Osegbo (2011) reviewed the relationship that exist between time overrun and productivity on projects and identified eighteen factors in literature that can cause time overrun and its impact on productivity. The study respondents ranked these 18 factors based on their influence on time overrun on projects. The study revealed that poor project planning before commencement, poor project funding, poor project cost management, poor project resource management and scope changes during project execution were ranked overall top issues causing time overrun on projects and directly impacting productivity of employees. The result is consistent with the research of Soekiman, Pribadi, Soemardi and Wirahadikusumah (2011) on the factors relating to labor productivity affecting the project schedule performance in Indonesia which revealed that the primary factors impacting productivity were linked to time, cost and quality. The study was conducted with the aim of revealing the latest information on key factors that impact project performance in terms of project completion time and productivity.

However, Hanaysha (2016) reviewed the effect of project schedule on performance and specifically employee productivity and found insignificant effect between the two variables. The study further suggested that planning the productivity, especially labour productivity is believed, will impact project planning and schedule. Telecommunication industry employees tend to optimize their ability according to the project schedule, because time is very delicate in the industry. Rasak, Osman, Yusof, Naseri, and Ali (2014), stated that the real failure of project management is when the outputs or results are not what is expected especially by the project stakeholders. The research also found that failure is attributed to poor morale, poor motivation, poor human resources, and poor employee commitment. They further asserted that poor employee morale and commitment could have also resulted in lack of productivity among employees.

In another study, Danso and Antwi (2012), evaluated the factors influencing time and cost Overruns in telecom tower construction in Ghana, found fifteen (15) major factors causing cost overruns in telecom tower construction projects. It also revealed that telecom projects executed between 1992 and 2011 experienced as much as 92% schedule overruns and the cost of the projects increased by 50% with labour productivity directly impacted. The results of the study showed that schedule overruns impact productivity and were mainly influenced by factors classified as client related such as inadequate project planning; poor quality control and unexpected management conditions. Also, contractor related factors such as poor workmanship leading to rework, unethical contractor behaviours and uncompromising attitudes between parties. Other factors are consultant related and they include design scope changes, inadequate managerial skills and poor contract management.

Solis-Carcano, Corona-Suarez, and Garcia-Ibarra (2015) while reviewing the use of project time management processes and the schedule performance of construction projects explained that project time delays have been frequently reported as the cause of several conflicts that affect the different parties involved in construction projects especially productivity. The study reported seven factors were globally relevant for time delays on projects. The result revealed that only 50% of the projects observed in this study were completed within the original schedule, and 21% were

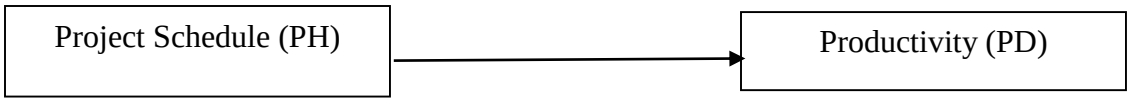
delayed, while for the remaining projects (29%) an extension of time was granted to complete them. All the delays implied extended period project resources being tied down on one project instead of these resources being available for other projects.

Nyangwara and Datche (2015), while reviewing the factors affecting the performance of construction projects in the coastal region of Kenya evaluated firstly the factors affecting the performance of construction projects in order to assist owners, consultants and contractors to overcome performance problem and to improve performance of their construction projects and secondly to determine the influence to which the external environment affects performance of construction projects and thirdly to identify the most significant project procedures that affect performance of projects and lastly to evaluate project management actions influencing project performance. The research used respondents comprising of project managers clients, contractors and consultants in construction firms throughout the coastal region of Kenya as the sample population The most important factors agreed by the owners, consultants and contractors influencing productivity and performance were tied to time factors of average delay because of closures and materials shortage; availability of resources to implement tasks as planned through project duration; leadership skills for project manager; escalation of material prices; availability of resources with high experience and qualification; and quality of equipment and raw materials needed by the project. The performance of employees is affected by many factors while it is linked to planned schedule of tasks to be implemented, scholars such as Dobre (2013) believes that employee performance is affected by factors such as salary, financial rewards and leadership structure directly impact productivity. The research concluded that where adequate planning is made for these factors, productivity is enhanced with the organisation.

Theoretically, project schedule management is supported by planning theory where it is explained that theory is a process that uses methods and procedures for setting goals, either for projects or organisation. These goals assist firms in the provision of options and providing directions towards achieving corporate objectives. Planning helps to design course of action for team members within a project, it provides opportunities for an evaluation of possible outcomes before implementation, it provides many options available for execution and team members can weigh these options and provide the pathway for the implementation of the chosen option. These are the exact activities planning that are core to project scheduling while implementing projects, that affect employee productivity (Faludi, 1973; Koskela & Howell, 2008; Ferreira, Sykes and Batey, 2009).

Arising from the theory, the theoretical framework for the study is thus represented in figure 1 below;

Figure 1: Researcher's Model



Source: Researcher's Model (2019).

The above framework is further illustrated in the model equation below:

$PD = \beta_0 + \beta_1 PH + e$ ---------- (i)

From equation (1), PD is productivity, PH is project schedule, and e is the exogenous variable, which captures all other variables that could explain productivity outside the model.

3.0 Methodology

This study employed survey research design to examine the effects of project schedule on productivity of selected telecommunication firms in Nigeria. The research design was selected since it helped to gather primary data needed for the study. The collected data were reliably gathered directly from the project employees through the research instrument of questionnaire and were used to make inferences on Information Systems division's project stakeholders and the projects they embark upon. The primary population for this study consisted of three (3) selected telecommunication firms in Nigeria. These firms were chosen because they were the market leaders in the industry and have the largest number of subscribers in Nigeria (Bakare, Ekanem, & Allen, 2017; NCC Subscriber data, 2018; Nkordeh, Bob-Manuel & Olowononi, 2017). The secondary population for the study included ninety-four (94) project employees in the information system (IS) division of the selected telecommunication firms. Data for the study were collected using questionnaire as research instrument and was subjected to construct and content validity to ensure that the variables measurements were accurate. The Cronbach's alpha reliability coefficient for project schedule was 0.814 and that of productivity was 0.909. Response rate from the administered 94 copies of the instrument was 78.7%.

4.0 Data Analysis

Data analyses were performed by checking for consistency of filled questionnaire to ensure data cleansing, sorting and coding. Normality, Linearity, Homoscedasticity and Multicollinearity tests were performed on the data collected in line with the study objective. Data were analysed using descriptive and inferential statistics. Descriptive statistics involved percentage distribution, mean and standard deviation while inferential statistics used simple linear regression. The objective of the study sought to establish the effect of project schedule on productivity of selected telecommunication firms in Nigeria. Study respondents were asked to indicate on a six-point likert type scale, their level of agreement on several statements describing project schedule in relation to productivity.

The descriptive statistics are as contained in Tables 1 and 2 below:

Table 1: Analysis of descriptive statistics of responses of respondents on project schedule

Items	Very High	High	Moderately High	Moderately Low	Low	Very Low	Mean	Std. Dev.
Work breakdown of project activities	45.9%	35.1%	18.9%	0.0%	0.0%	0.0%	5.27	.764
Allocation of appropriate resources to activities	4.1%	64.9%	31.1%	0.0%	0.0%	0.0%	4.73	.531
Appropriate estimation of activity durations	27.0%	44.6%	27.0%	1.4%	0.0%	0.0%	4.97	.776
Completion of project on schedule	35.1%	51.4%	13.5%	0.0%	0.0%	0.0%	5.22	.668
Sequencing of activities within projects	27.0%	44.6%	27.0%	1.4%	0.0%	0.0%	4.97	.776

Source: Field survey data (2019).

According to results in Table 1, the mean responses to the constructs on project schedule ranged from 4.73 to 5.27 indicating that the level of project schedule implementation among telecommunication firms were high based on the constructs applied and as rated by the respondents on a six point likert type scale.

Table 2: Analysis of descriptive statistics of responses of respondents on productivity

Items	Very High	High	Moderately High	Moderately Low	Low	Very Low	Mean	Std. Dev.
Experience in the use of technology to deliver projects	52.7%	44.6%	1.4%	1.4%	0.0%	0.0%	5.49	.602
Team members ability to interpret product requirements	4.1%	68.9%	27.0%	0.0%	0.0%	0.0%	4.77	.511
Team members capacity to implement tasks within Schedule	25.7%	32.4%	41.9%	0.0%	0.0%	0.0%	4.84	.811
Team members individual skills	37.8%	45.9%	16.2%	0.0%	0.0%	0.0%	5.22	.707

Source: Field survey data (2019).

According to results in Table 2, the mean responses to the constructs on productivity ranged from 4.77 to 5.49 indicating that the level of productivity implementation among telecommunication

firms were high based on the constructs applied and as rated by the respondents on a six point likert type scale.

Relating results in tables 1 and 2 together, descriptive statistics revealed that a larger percentage of the respondents rated most of the question items of project schedule and productivity high and also have similar pattern of increase with grand mean of 5.03 and 5.08 respectively.

The result of simple linear regression conducted is presented in table 3 below;

Table 3: Results of regression of Project Schedule on Productivity

Variables	***B***	***Std. Error***	***B***	***t***	***ρ-value***	***R***	***R^2***
Constant	16.673	1.703		9.792	0.000	0.245	0.060
Project Schedule	0.145	0.068	0.245	2.140	0.036		

Source: Field survey results (2019).

The results revealed that project schedule have positive and significant effect on productivity of selected telecommunication firms ($R^2 = 0.060$, $\beta = 0.145$, $t = 2.140$, $p<0.05$). The t-value showed that the model parameter was statistically significant ($t = 2.140$, $p<0.05$). Further, the result showed that there was a weak positive relationship between project schedule and productivity of selected telecommunication firms ($R = 0.245$). The coefficient of determination (R^2) was 0.060 indicated that about 6% changes in productivity of the selected telecommunication firms was explained by their project schedule in place, while the remaining 94% changes in productivity of selected telecommunication firms in Nigeria was accounted for by other variables not captured in the model.

From Table 3, the estimated model of the study is as follows:

Productivity = 16.673 + 0.145 Project schedule ……..... Eq. 1

From the regression equation above, it was revealed that holding project schedule constant at zero, productivity of selected telecommunication firms would be at 16.673 level. The data analysed further showed that the regression coefficient of project schedule was 0.145. This was a positive progression, signifying that when project schedule was improved by one unit in the measurement scale, productivity of selected telecommunication firms in Nigeria was positively affected by an improvement of 0.145 units. With the significant value in the model standing at 0.036, the level of significant was less than 0.05 ($p<0.05$). This meant that project schedule significantly predicted productivity of telecommunication firms. Overall, the result showed that project schedule had a weak positive and significant effect on productivity of selected telecommunication firms in Nigeria.

5.0 Discussion

The objective of the study sought to determine the effect of project schedule on productivity of selected telecommunication firms in Nigeria. This objective has been determined in this study where analyses of results were presented in tables 1 – 3 and also discussed. The simple linear regression result revealed that project schedule had a significant effect on productivity of selected telecommunication firms in Nigeria. This implies that for telecommunication firms in Nigeria to achieve optimal project employee productivity during projects implementation, they must pay adequate attention to the project schedule meant for projects implementation. This concurred with the study by Dziekoski (2017) who found a positive and significant relationship between project schedule management and productivity of employees. The study also concurred with the findings of Awad, Aviad, El Asmar, and Taylor (2013) who investigated the impact of crew scheduling on project performance and showed the effect of project schedule and productivity to be positive and significant.

Theoretically, the outcome of this study was in line with the planning theory as the anchor theory for this study. The theory was selected to guide the study variables because its perspective is tied to the focus of the study and the dimensions under investigation. Planning theory addressed the dimensions that were needed to ensure that project schedule implementation satisfied optimal employee productivity. The theory served as a guide for project implementers (project sponsors, project managers and team members) in helping to provide focus and direction for project employees on the important of granular breakdown of work entities, the importance of planning to aid improved employee productivity and also provided guide on the dimensions to focus on and how these dimensions are influenced by independent variables of project schedule during project implementation.

5.1 Conclusion and Recommendation

The study concluded that project schedule has a positive relationship with productivity and the more accurate project schedule is during project execution, the more the productivity during projects implementation. The implication is that project schedule management is a requirement towards achieving optimal employee productivity during project implementation. Thus the study recommended improved management style, increased boost of project employee morale, increased motivation of the employees (based on knowing what best motivates), improved capital management can aid employee commitment during project implementation and positively impact their productivity.

References

Aftab, H., Ismail, A., Ismaini, I. & Noor, Y. (2014). Time management practices in large construction projects. *Colloquium on humanities, science and engineering*, *5*(3), 61 - 65.

Aftab, H. & Javeed, A. (2012). The impact of job stress on the counter-productive work behavior (cwb): A case study from the financial sector of Pakistan. *Interdisciplinary journal of contemporary research in business*, *4*(7), 590 - 604.

Akinyomi, O. & Tasie, C. (2011). Impact of telecommunication liberalisation in Nigeria. *International journal of management and enterprise development 8*(2),125-133.

Ameh, O. & Osegbo, E. (2011). Study of relationship between time overrun and productivity on construction sites. *International journal of construction supply chain management*, *1*(1), 56 -67.

Awad, S., Aviad, S., El Asmar, M. & Taylor, S. (2013). Impact of crew scheduling on project performance. *Practice periodical on structural design and construction*, *18*(1), 35 - 44.

Bakare, B., Ekanem, L. & Allen, I. (2017). Appraisal of global system for mobile communication (GSM) in Nigeria. *American journal of engineering research*, *6*(6), 97 - 102.

Berssaneti, F. & Carvalho, M. (2015). Identification of variables that impact project success in Brazilian companies. *International journal of project management 33*(3), 638–649.

Bukit, I., Ismida, Y., Maulana, R. & Nasir, M. (2018). The influence of wage, age and experience to labor productivity in construction works in Kota Langsa, Aceh. *MATEC web of conferences*, *147*(1), 10 - 14.

Danso, H. & Antwi, J. (2012). Evaluation of the factors influencing time and cost overruns in telecom tower construction in Ghana. Civil and environmental research, 2(6), 15 – 24.

David, H., Cristobal, S. & Bruce, B. (2013). A structural model of the impact of quality management practices and purchasing – related information systems on purchasing performance: A TQM perspective. *Total quality management journal*, *19*(2), 149–162.

Dobre, O. (2013). Employee motivation and organizational performance. *Review of applied socio- economic research*, *5*(1), 8.

Dziekoski, K. (2017). Project managers' competencies model for construction industry in Poland. *Science direct*, *182*, 174-181.

Faludi, A. (1973). *A reader in planning theory* (1st ed.). Oxford, New York: Pergamon press.

Ferreira, A., Sykes, O. & Batey, P. (2009). Planning theory or planning theories? the hydra model and its implications for planning education. *Journal for education in the built environment*, *4*(2), 29-54.

Hanaysha, J. (2016). Improving employee productivity through work engagement: Evidence from higher education sector. *International journal of industrial engineering computations, 6*(1), 61 - 70.

Kaczorowska, A., Motyka, S. & Słoniec, J. (2019). Portfolio approach to project management in creation of the organisation's value. Matec web of conferences, 252(1), 12 - 19

Kloppenborg, T. & Opfer, W. (2002). Forty years of project management research: Trends, interpretations, and predictions. project management research at the turn of the millennium. *Proceedings of PMI research conference, 3(3),* 21-24.

Koskela, L. & Howell, G. (2008). The underlying theory of project management is obsolete. *IEEE engineering management review, 36*(2), 22 - 34.

Nigerian Communications Commission (NCC) subscriber data (2018). Industry overview: Subscribers/Teledensity. Retrieved from https://www.ncc.gov.ng/stakeholder/statistics-reports/industry-overview

Nkordeh, N., Bob-Manuel, I., & Olowononi, F. (2017). The Nigerian telecommunication industry: Analysis of the first fifteen years of the growths and challenges in the GSM market (2001 – 2016). *Proceedings of the world congress on engineering and computer science, 1*(1), 102 - 121.

Nyangwara, P., & Datche. E. (2015). Factors affecting the performance of construction projects: A survey of construction projects in the coastal region of Kenya. *International journal of scientific and research publications, 5*(10), 1 – 43.

Ogunde, A., Olaolu, O., Afolabi, A., Owolabi, J. & Ojelabi, R. (2017). Challenges confronting construction project management system for sustainable construction in developing countries: Professionals perspectives (a case study of Nigeria). *Journal of building performance, 8*(1), 1 - 11.

Pekuri, A., Haapasalo, H. & Herrala, M. (2011). Productivity and performance management: Managerial practices in the construction industry. *International journal of performance measurement, 1*(1), 39-58.

Project Management Institute. (2014). *The PMBOK guide: A guide to the project management body of knowledge* (6th ed.). Pennsylvania: PMI Publications.

Rasak, M., Osman, I., Yusof, M., Naseri, R. & Ali, M. (2014). Factors affecting labor productivity in Malaysia: An overview. *International journal of economics, commerce and management, 2*(10), 1 – 13.

Sharma, M., & Sharma, M. (2014). Employee engagement to enhance productivity in current scenario. *International journal of commerce, business and management, 3*(4), 595-604.

Siti, H. (2014). Integration of program evaluation and review technique (PERT), Gantt chart and Genetic algorithm. *International journal of production research, 53*(2), 371–382.

Soekiman, A., Pribadi, K., Soemardi, B.& Wirahadikusumah, R. (2011). Factors relating to labor productivity affecting the project schedule performance in Indonesia. *Procedia engineering, 14*(1), 865 – 873.

Solis-Carcano, G., Corona-Suarez, G. & Garcia-Ibarra, J. (2015). Time and cost control in construction projects in southeast Mexico. *Journal of construction engineering, 18*(4), 411– 422.

Ssempebwa, R. (2015). *Project schedule management*. USA: Atlantic international university.

Yaghootkar, K. & Gil, N. (2012). The effects of schedule-driven project management in multi-project environments. International journal of project management, 30, 127 - 140.