Success of Production Control in Civil Engineering Projects

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Abstract: The construction industry is dynamic in nature due to the increasing uncertainties in technology, budgets, and development processes. Nowadays, building projects are becoming much more complex and difficult. The project team is facing unprecedented changes. The study of project success and the critical success factors (CSFs) are considered to be a means to improve the effectiveness of project. The topic of this thesis was construction management and improving the production control processes in construction projects. The main goal of the research was to examine how production is currently controlled and to establish the root causes for failure to implement schedules as they are planned.

The questionnaire surveys were taken. Production control data was collected systematically from the project teams from the beginning to the end of all the case projects. These data were used to assess the reliability of the plans in detail. The actual production control process was followed by direct, personal observation. The purpose of this study is to systematically investigate the causes of project failure and how these can be prevented, managed, or controlled. Constructions projects are frequently influenced by success factors which can help project parties reach their intended goals with greater efficiency. The aim of this study was to investigate the factors leading to construction company success.

Introduction

In most industrial sectors (including agricultural) the production of the goods is more or less a routine process. Production of infrastructure is on the other hand usually not a routine. The construction output is a prototype and usually addresses specific needs and demands. The design of each piece of infrastructure is unique and purpose specific. Therefore the project approach is widely considered to be more appropriate in the construction industry. A big difference between routine and project production is that routine production uses one design to produce hundreds, thousands, or even millions of exactly the same goods, whereas the project approach usually result in one unique product. Although an existing design may be modified over and over again, the final product is always different. This implies that final characteristics of the product are uncertain at the start of the project.

Project plans and schedules are critical to the success of a project. According to the PMBOK (Project Management Body of Knowledge) planning is considered one of the main tasks of project management. However, in recent years, there has been increasing awareness that construction schedules are not relevant to the day-to-day management of projects. The focus of management is on planning, but keeping plans up-to-date and properly implementing those plans are challenges. Poor plan implementation leads to a requirement to make up lost time by an unplanned compression of the schedule, which happens in the majority of projects. For example, a study reported that 91% of the survey sample of 140 respondents had the need for time compression in their projects. The unplanned compression of schedules typically leads to lost productivity and wasted time and poor quality. Decreasing waste has been a key goal for lean construction research. The main theoretical argument in lean construction has been that the traditional scheduling and controlling theories focus on the transformation of inputs to outputs. In this view, flows and value generation are ignored. For example, traditional CPM scheduling ignores resource constraints and therefore considers only the flows related to precedence. The inputs of the production process are assumed to be available when needed. Because the focus is on individual transformations, the wasted time between transformations (flow) is ignored. Argues that the theory of production should combine the transformation, flow, and value points of view.
The purpose of this research is to improve look ahead planning (the bridge between weekly work planning and master scheduling), improve PPC, and improve the selection of tasks that are critical to project success by increasing the link between Should, Can, Will, and Did (components of the LPS), thereby rendering PPC a better indicator of project progress.

The research employs the case study research method to describe deficiencies in the current implementation of the LPS and suggest guidelines for a better application of LPS in general and look ahead planning in particular. It then introduces an analytical simulation model to analyze the look ahead planning process. This is done by examining the impact on PPC of increasing two look ahead planning performance metrics: tasks anticipated (TA) and tasks made ready (TMR). Finally, the research investigates the importance of the look ahead planning functions: identification and removal of constraints, task breakdown, and operations design.
The research findings confirm the positive impact of improving look ahead planning (i.e., TA and TMR) on PPC. It also recognizes the need to perform look ahead planning differently for three types of work involving different levels of uncertainty: stable work, medium uncertainty work, and highly emergent work.

The research confirms the LPS rules for practice and specifically the need to plan in greater detail as time gets closer to performing the work. It highlights the role of LPS as a production system that incorporates deliberate planning (predetermined and optimized) and situated planning (flexible and adaptive).

Finally, the research presents recommendations for production planning improvements in three areas: process related- (suggesting guidelines for practice), technical-(highlighting issues with current software programs and advocating the inclusion of collaborative planning capability), and organizational improvements (suggesting transitional steps when applying the LPS).

**Title- Production control principles.**

**Author- Glenn Ballard.**

This paper reports the results of a search for the principles of production control. The search starts from the Last Planner system, develops its principles, functions and methods and then explores their applicability to designing and making, the primary types of work involved in project production systems. What differences in these types of work make a difference for control? What adaptations of principles, functions or methods and tools are needed for different types of work?

The authors tentatively propose that the principles and functions derived from Last Planner are applicable to the types of work involved in project production systems, and that methods now in use can be successfully adapted for those types of work. The paper concludes with a description of needed research

**Scope, Methodology, Purpose.**

**Scope :-**

Following are the objectives of the proposed dissertation work.

a) Collect information related to production control through literature review and or preliminary study on site.

b) Study the success of production control in Civil Engineering Projects.

c) Conduct questionnaire survey for production control in Civil Engineering Projects.

d) Identify & analyze root causes of failure to implement the schedule in Civil Engineering Projects.

e) Suggest the guidelines to overcome the failure in production control.

**Purpose of dissertation**

This proposed study will be helpful for construction managers to manage, handle and avoid the failure of project. This will help in reduce the wastage of energy by optimum use of resources.

**References**


