



SIMULATION STUDY TO IMPROVE THE PERFORMANCE OF MULTIPLE PROJECTS

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ABSTRACT

This research reflects the matter regarding multiple projects that faced by the construction industry in Malaysia. The purpose of this research is to model the performance of multiple projects since there are lots of factors that can affect multiple projects' performance. A construction related company which involves in multiple projects is selected for interview and data collection session. Later, the collected data is inserted into the system dynamic model that has been developed so that the simulation outputs about the performance of multiple projects can be generated. Finally, recommendation is provided to improve the performance of multiple projects in the company.

INTRODUCTION

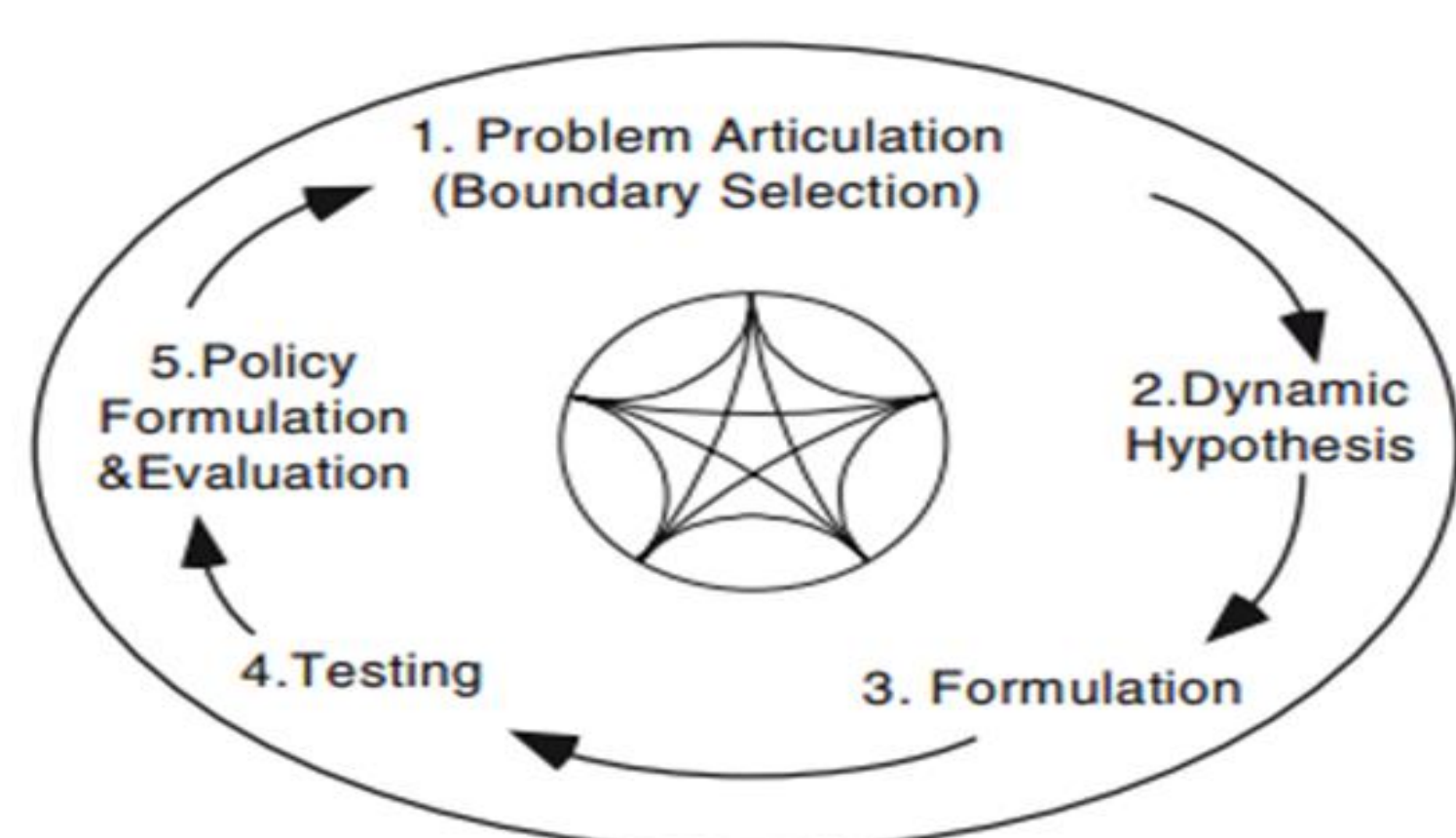
There are plenty of projects available in the construction industry, companies will choose to involve in the multi-projects environment to remain their competitiveness among the rivals. In this case, problem of the QS consultant company arise when it has to manage increasing numbers of multiple projects with their limited resources available. As failure in handling multiple projects effectively will lead to critical implications such as inability to complete project on time which will ruin the reputation of company.

OBJECTIVES

- ❖ To model the performance in terms of time and cost of multiple projects.
- ❖ To recommend ways for improving the performance in terms of time and cost of multiple projects.

METHODS

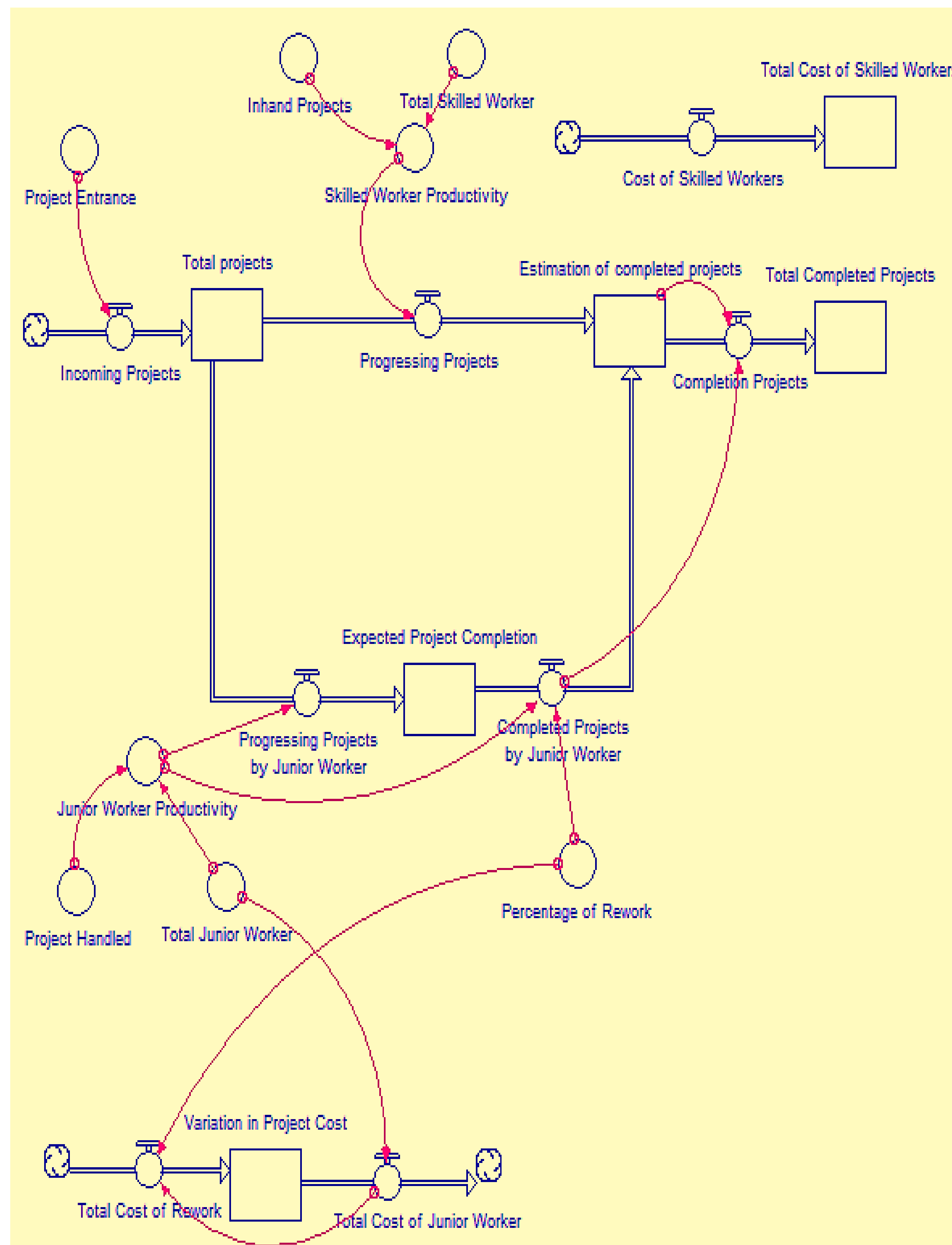
- ❖ Data Collection Methods
 - Observation to collect information during the planning phase of projects.
 - Interview to have better understanding about the process and work cultures.
- ❖ System Dynamic Modeling Process is a process to help thinking, visualizing and communicating complex issues over time.



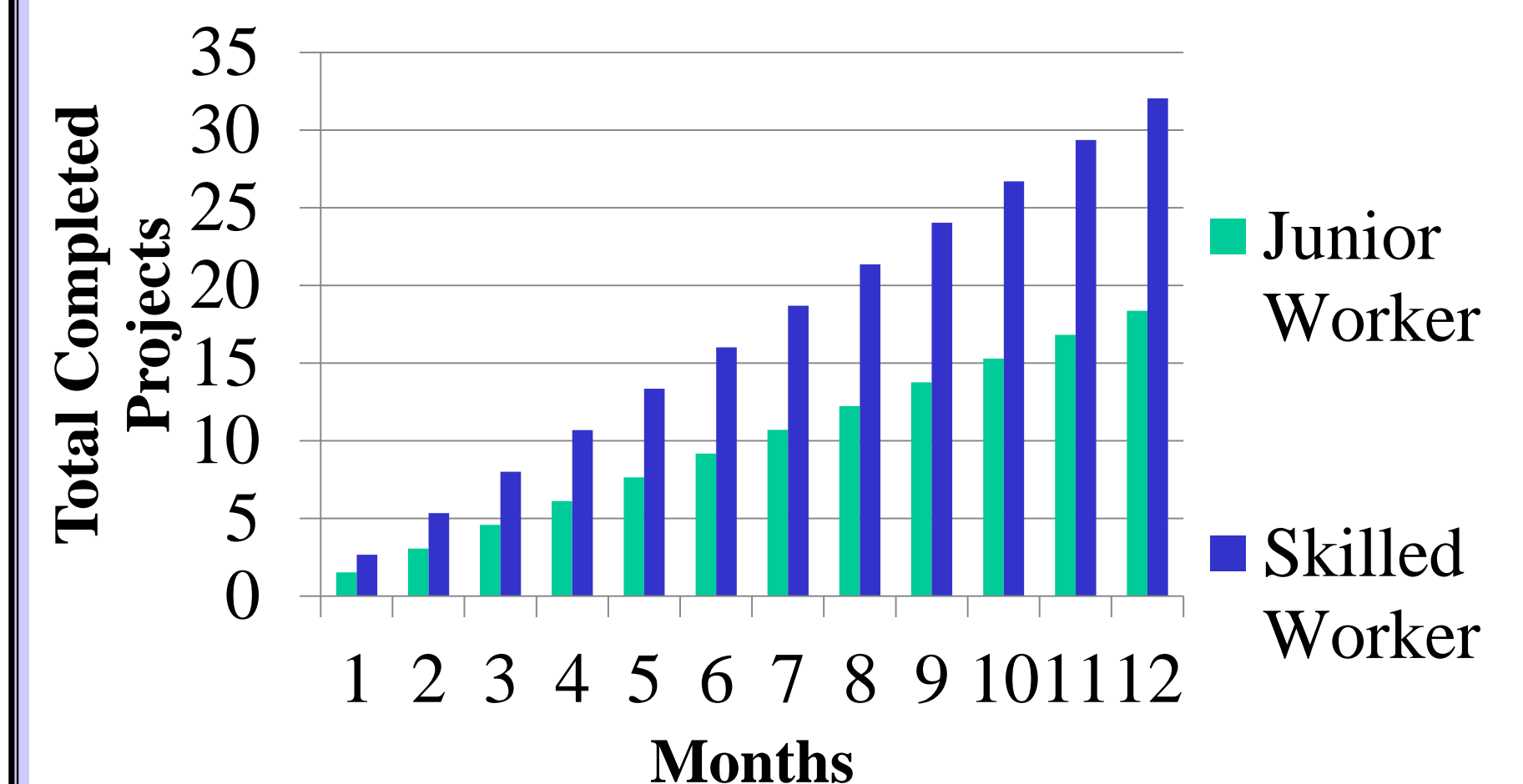
Five Steps Modeling Process (Sternan,2000)

RESULTS

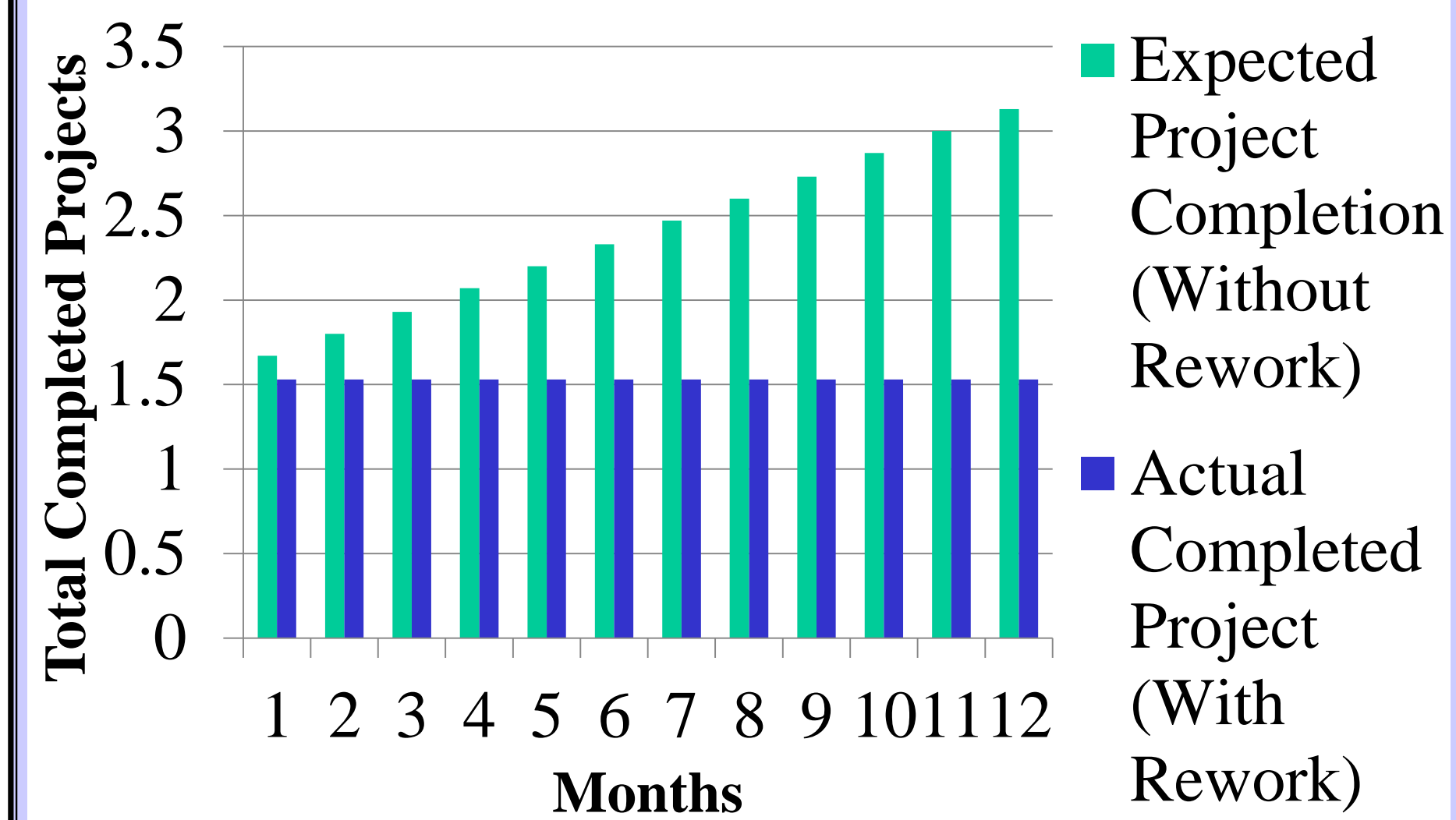
1. Stock and Flow Diagram of System Dynamic Model in Multiple Projects.



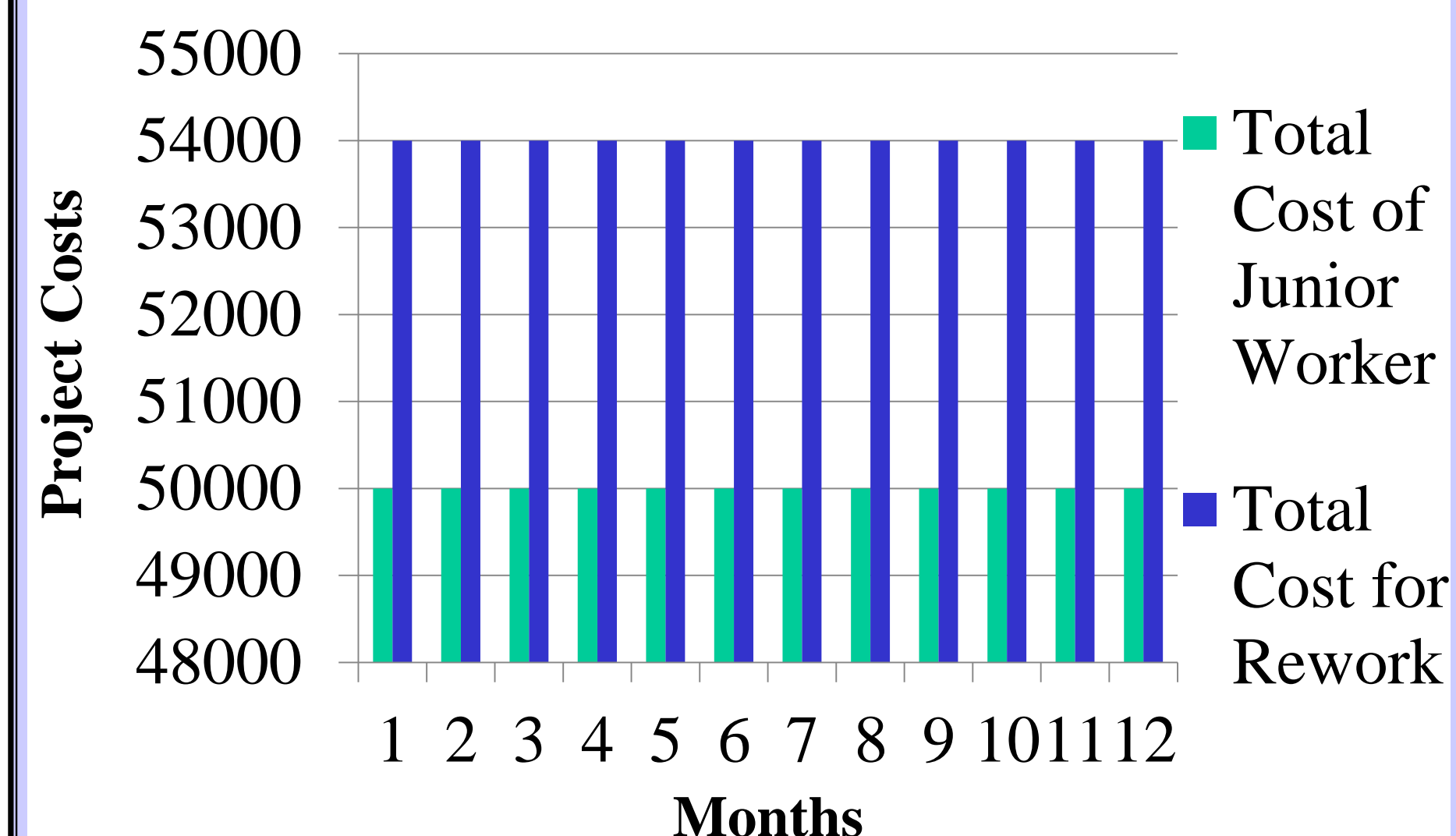
2. Comparison between Total Completed Projects Done by Junior Worker and Skilled Worker



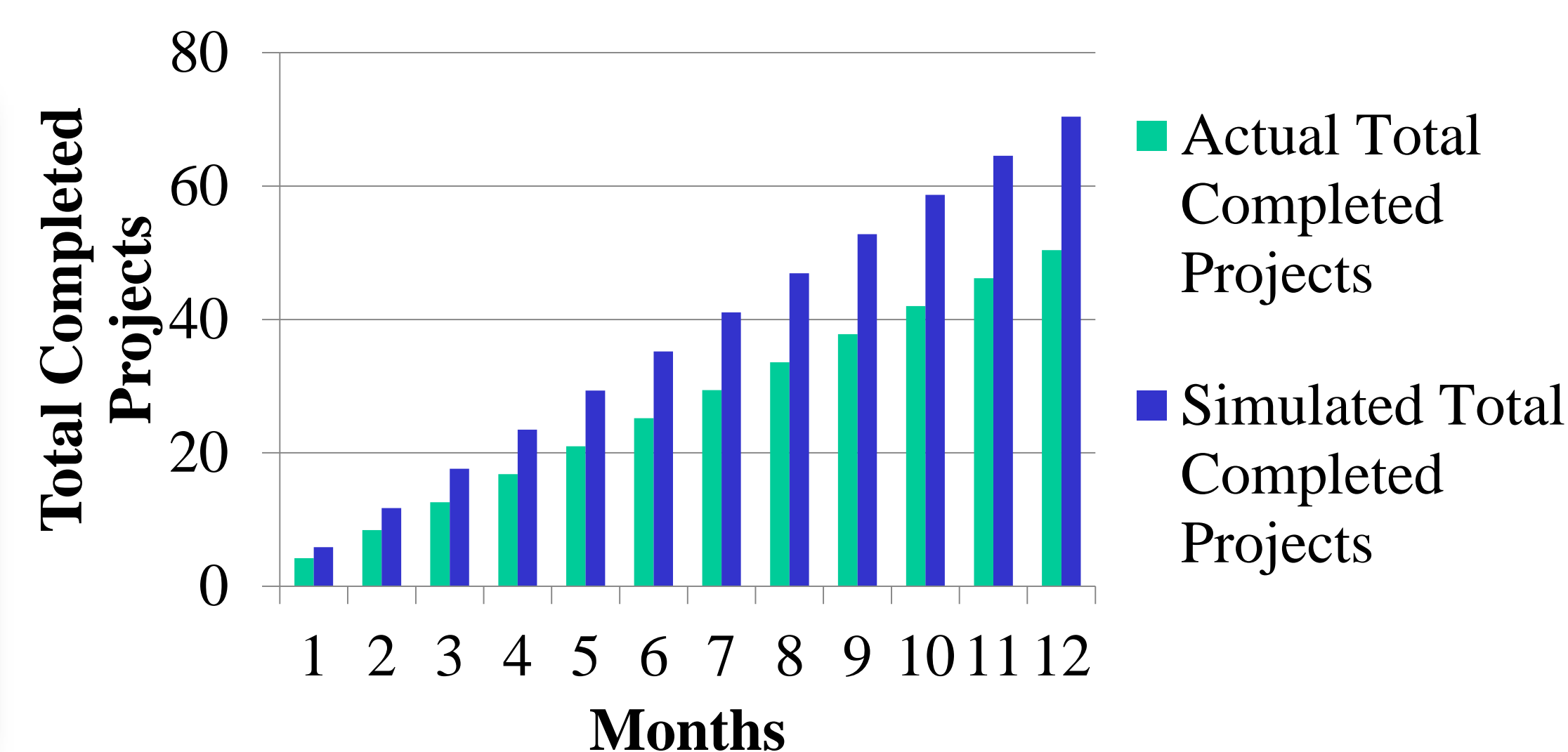
3. Comparison between Expected Project Completion and Actual Completed Projects by Junior Worker



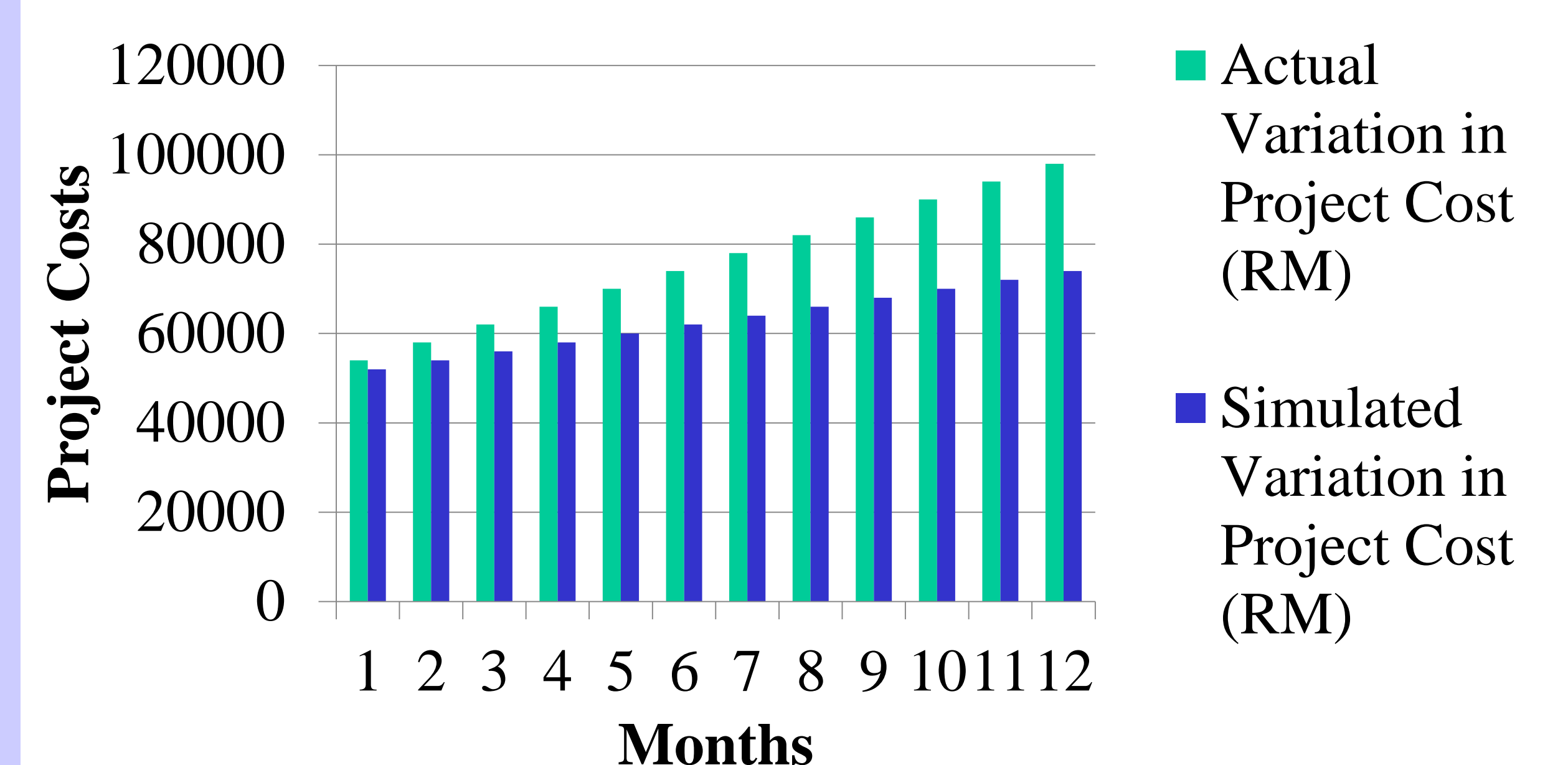
4. Comparison between Total Cost of Junior Worker and Total Cost for Rework



5. Recommendation: When training is provided, the efficiency of junior worker is improved and lead to higher productivity as well as lower percentage of rework.



6. Recommendation: When training is provided, the Variation in Project Cost has reduced.



CONCLUSIONS AND RECOMMENDATION

The findings of this study have shown that productivity of workers from different categories (junior workers and skilled workers) as well as reworks are important factors which will affect the performance of multiple projects. Hence, to improve the performance of multiple projects, training sessions should be provided especially to the junior workers to increase their productivity and reduce their percentage of rework so that the additional expenses for rework are able to cut down. For future study, it will be good for the researcher to relate the performance of multiple projects with effective resource management.