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### Understanding Time, Cost, Quality, and Risk Trade-Off In Construction Projects Through A Review of Literature & Survey Distribution

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# Understanding Time, Cost, Quality, and Risk Trade-Off In Construction

## Projects Through A Review of Literature & Survey Distribution

Honors Scholars Project – Construction Management II

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Professor Anne Marie Sowder



### ABSTRACT

In the construction industry, projects consist of many different variables that affect successful completion. These variables may be scope, cost, time, quality, risk management and assessment, and more. Although all factors affect various construction projects differently, the three main variables that often result in a need for a trade-off decision are cost, quality, and time. Often referred to as the “Iron Triangle” or the “Triple Constraint”, many times owners and project managers are put under the pressure of having to choose two out of the three variables. If the project is cheap, it cannot be completed quickly and be of the best quality. Similarly, if the project is high quality, more expenses will be incurred and/or more time will be required. Through a review of literature and administration of a topic related survey, my methodology consisted of identifying the most common trade-offs for construction projects, and whether there is a difference between owner and project manager decisions under such situations.

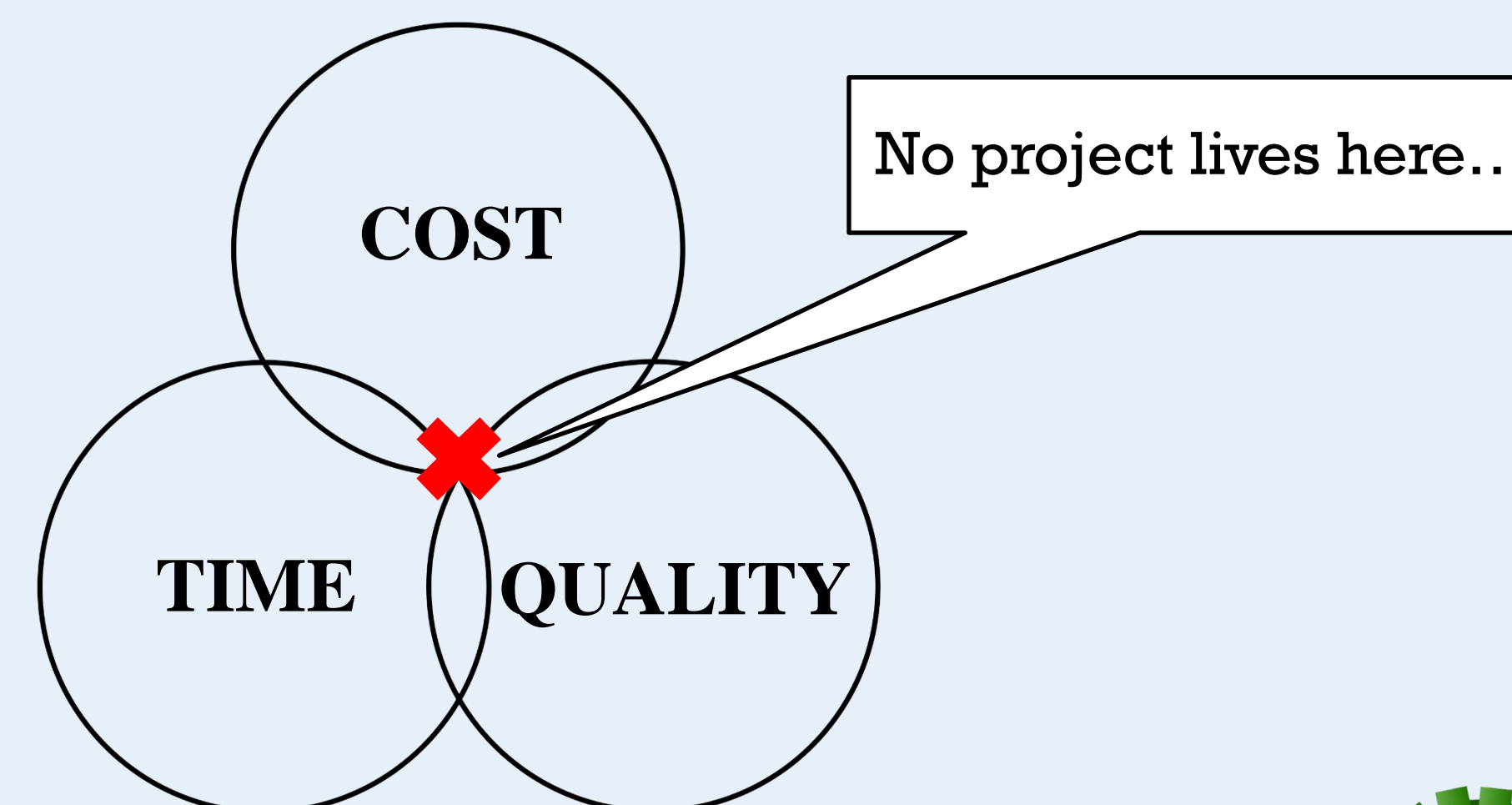
### METHODOLOGY

- 1 Reviewed literature to identify common trade-offs for the Iron Triangle in construction projects.
- 2 Administered a survey to fellow Professors and friends currently in the industry.
- 3 Compared results yielded from the survey with those obtained from the literature.



### DISCUSSION

Literature and survey results express that project managers and owners have different priorities for project success and that each participant has their own view as to how important certain project elements are. It will often be this way due to differentiating end goals and outcome expectations after the project is completed. Navigating these priorities to meet each project participant's desired outcome is important in order to assist with the trade-off process. The trade-off among these project elements plays a crucial role in the construction industry, as it can lead to the difference between successful and unsuccessful project completion.

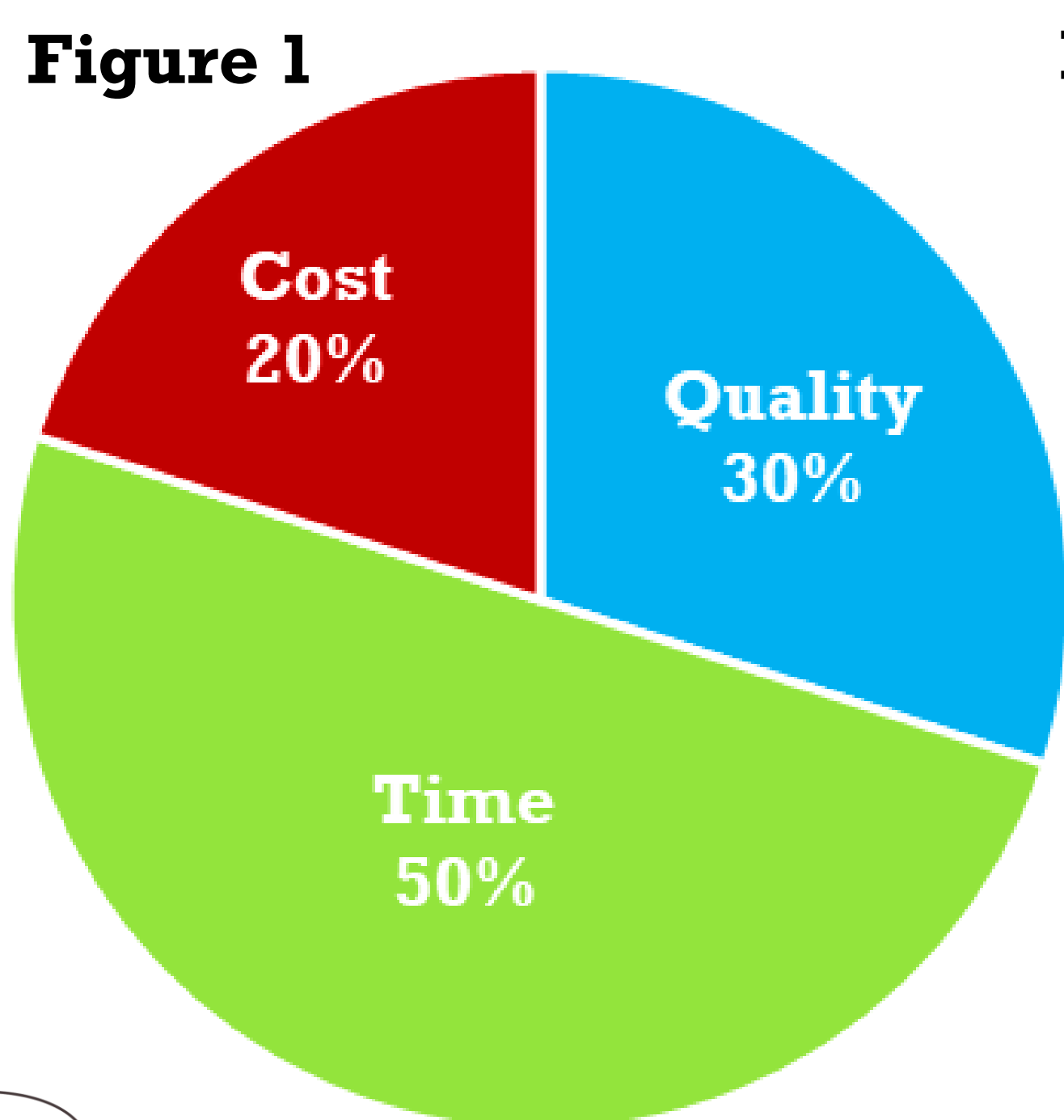


### CONCLUSION

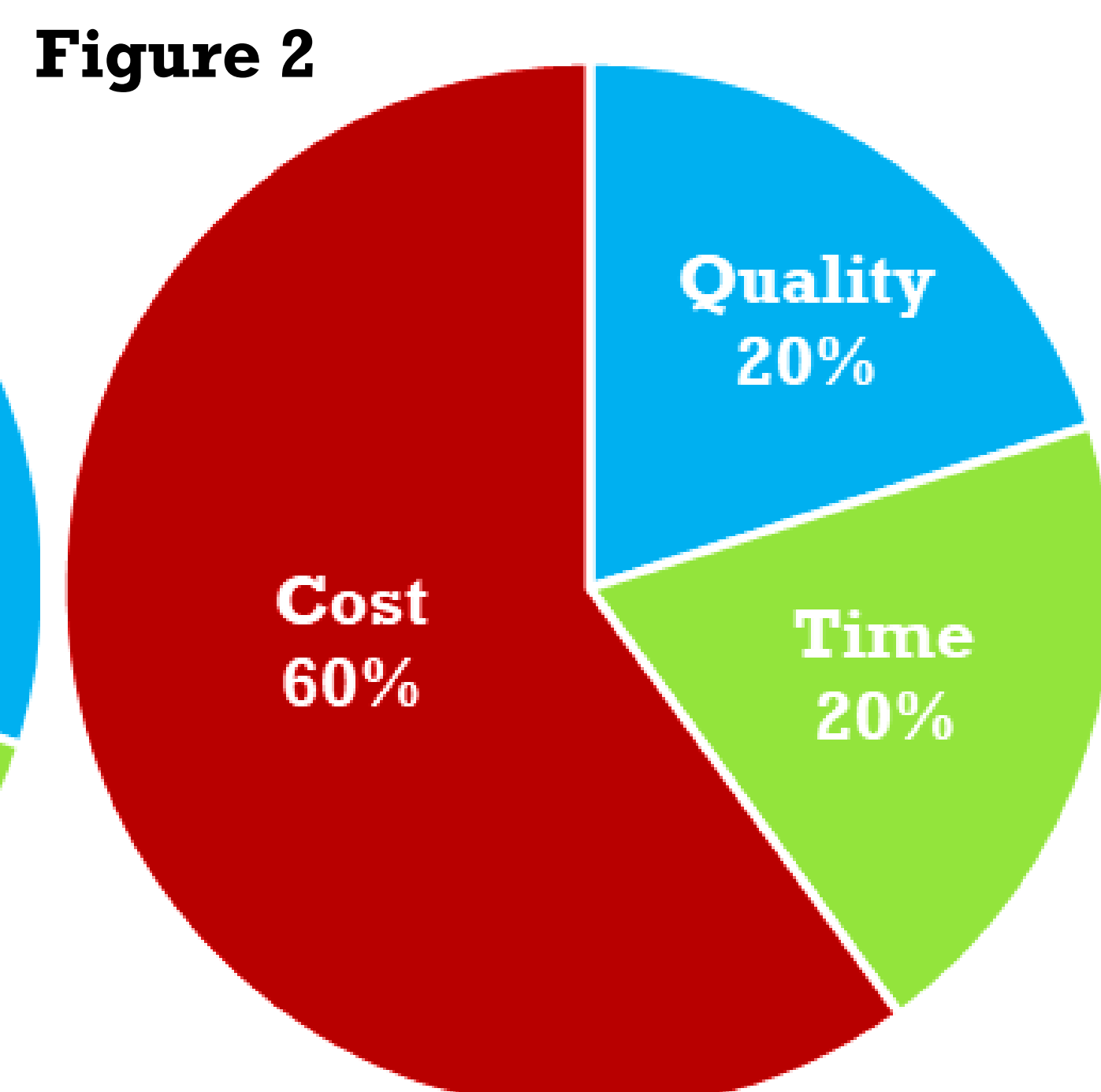
In final analysis, time, cost, and quality trade-off is a valuable tool for prioritizing and decision making. It is important that both project managers and owners consider utilizing it during their projects, and to avoid as many issues as possible, prioritize which objective should be addressed first. Both the literature and survey results have shown that both project participants have contradictory views regarding which factors should be traded off for a project, but if addressed in a professional and timely manner, these risks and problems can be mitigated before they occur. Understanding the importance of these trade-offs can assist the project participants to ensure successful project completion.

### RESULTS

#### PROJECT MANAGER



#### OWNER



#### Order Of Importance For The Triple Constraints

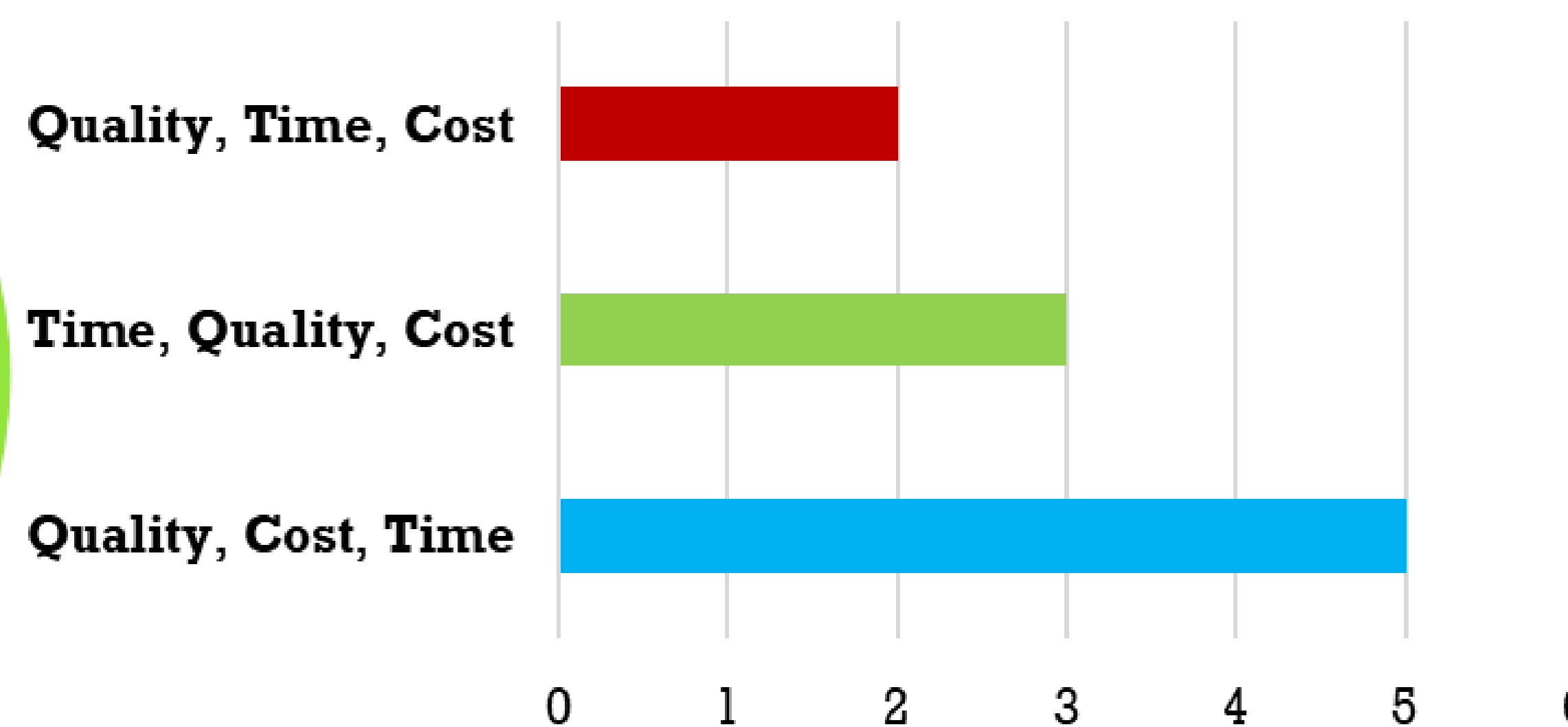


Figure 3

Figure 1 and Figure 2 represent the most important constraint to the project manager and owner respectively, while Figure 3 displays the survey participant's opinions on the importance of constraints where the first listed is the most important and the last listed is the least important.

### REFERENCES

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