

RESUMO N° 19

## MULTIOBJECTIVE OPTIMIZATION: TIME-COST APPLICATION IN CONSTRUCTION

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In a construction project, there are two main factors, such as project duration and project cost. These are depended to each other. The activity duration is a function of resources (i.e. crew size, equipments and materials) availability. On the other hand, resources demand direct costs. Therefore, the relationship between project time and direct cost of each activity is a monotonously decreasing curve. It means if activity duration is compressed then that leads to an increase in resources and so that direct costs. But, project indirect costs increase with the project duration. In general, for a project, the total cost is the sum of direct and indirect costs and exists an optimum duration for the least cost. Hence, relationship between project time and cost is trade-off [1].

In today's market-driven economy, the ability to minimize the time and/or cost of a project could determine the profitability and even the survival of a construction company. The increasing acceptance of alternative tenders and different project delivery systems, such as design and build, management contracting, build-operate-transfer, partnering, etc., allows greater flexibility in construction duration. This also means that both construction time and cost should be considered concomitantly at the estimation and planning and stages [2].

The main purposes of this study are to incorporate both the duration time and cost into the objective function and to develop an efficient heuristic search scheduling rule using a genetic algorithm.

### REFERENCES

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