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# Strategic Project Management in Indian Construction Industry Based on Genetic Algorithms: A Comparative Study with Current Methods

**Rahul Vasant Vaidya**[1*], **Alok Kumar Singh**[2], **Ashwini Khemchand Patil**[3]

[1*]Research Scholar, Indian Institute of Management, Nagpur, Maharashtra, India.
[2]Phd. Guide & Professor, Indian Institute of Management, Nagpur, Maharashtra, India.
[3]Associate Professor, Department of Instrumentation and Control Engineering, KBTCOE, Nashik, Maharashtra, India.

**Abstract**
India has experienced familiar problems in the construction industry including delays in project completion, cost escalation and poor utilization of resources, which may be considered to be failures in managerial accounting control systems including budgeting, standard costing and variance analysis. The paper redefines these problems in the context of accounting and governance and proposes the implementation of the Genetic Algorithms (GAs) technology as a new method of optimizing projects and accounting practices. Based on the information of the large-scale infrastructure projects a GA-based model was created to balance the scheduling, costs, and allocation of resources and the results are used as a standard of costs and resources benchmarks to analyze the variance. When compared with traditional approaches to CPM, PERT, and LP, it can be revealed that the GA optimization lowers adverse cost and time variances significantly, increases efficiency ratio, and improves the overall control of the project. Other implications on financial accounting based on the findings include the acceleration of recognition of work-in-progress, timing of revenue, and decreasing overrun provisioning by using GA-based schedules. In managerial accounting, GA introduces a new standard-setting mechanism for budgeting and performance evaluation. From an assurance perspective, GA offers auditability and governance measures aligned with auditing standards for accounting estimates, while addressing ethical and governance concerns related to over-optimization and the management of algorithmic decision systems. Extensions into sustainability accounting demonstrate how incorporating ESG factors into GA fitness functions enables organizations to evaluate cost-carbon trade-offs, supporting integrated reporting. This study contributes to the existing literature by showing that GA optimization links project management with accounting theory and practice, helping to reform variance analysis, assurance frameworks, governance structures, and sustainability reporting in project-based industries. Further research is necessary to explore GA applications in ESG assurance and the behavioral aspects of managerial acceptance of algorithmic benchmarks.

**Keywords:** Genetic Algorithm, Project Management, Construction Sector, Optimization, Scheduling, Cost Overruns, Resource Allocation, India, Artificial Intelligence, Comparative Analysis

## 1. Introduction

The Indian building construction industry is one of the major drivers of economic growth and infrastructure development in India. In 2024, it grew by an estimated 11.2% to INR 25.31 trillion, with impetus provided by massive infrastructure investments such as the Delhi-Mumbai Industrial Corridor and the Atal Tunnel [1], [2].

Despite this momentum, the industry continues to face persistent problems that hinder the efficient execution of projects. The lack of labor, rising material prices, macroeconomic instability, the lack of skills, complicated regulations, and the slowness in the use of technologies often contribute to postponements and overruns in the project [3], [4]. With regards to managerial accounting, such inefficiencies can be re-defined into control-problems: budgetary failures, weak standard costing, and weak variance analysis. Poor schedule variances are related to delays and poor cost variances are related to costs overruns that have both financial reporting and operational performance implications [5]-[7].

There is need to plan, allocate resources, risk management and schedule, which will result in successful delivery of the projects. The traditional methods however do not deal with the dynamic costtime quality trade-offs involved in the large scale construction projects; hence cannot be considered as reliable methods of accounting and control [5]. The effects of such failures can be dreadful in the rapidly urbanizing India: the credibility of the project and the trust of the stakeholders are diminished due to the delays in the construction process [6], and the expensive construction process due to wrong estimates, making changes in the design, and raising the prices of materials can impose a toll on the budgets and provisions [7]. These not only impede the delivery of the projects but also misrepresent financial statements specifically in the work-in-progress (WIP) recognition and the setting of the timings of the revenue under the IFRS 15 [11].

The conventional methodologies such as Critical Path Method (CPM), Program Evaluation and Review Technique (PERT) and Linear Programming (LP) have made the implementation of project scheduling and resource planning [12], [13] possible. Although useful in technical planning, these approaches have severe flaws in an accounting and governance perspective:

- Inflexibility to Change: CPM and PERT are based on fixed assumptions and cannot handle uncertainty effectively.
- Single-Objective Focus: LP maximizes one objective, ignoring realistic cost–time–quality trade-offs.
- Local Optima Risk: Classical approaches may converge on suboptimal solutions, leading to misaligned budgets and misleading financial estimates.

These limitations add to the importance of high level optimization strategies that may assist in improving the services of a project, developing better accounting controls, cost reports, and governance structures [14], [15].

Among the alternatives, there can be the Genetic Algorithms (GAs) that are based on the principle of the natural selection. GAs are capable of searching massive solution space with an imitation of a mechanism of selection, crossover and mutation. In addition to the purpose of the GAs as the optimization of schedules, allocation of resources, and minimization of costs, they may be a novel accounting technology. They may be performed [12] in order to provide them with the abilities to provide optimum standard cost, reduce unfetish variances, improve the cost behavior, and increase the accuracy of budgeting and forecasting. Their results, further, pose a serious issue of auditing and assuring because the estimates of accounting generated by algorithms are under the jurisdiction of ISA 540 (Revised) [13]. In the meantime, the algorithmic decision-making should be regulated and managed through new corporate accountability frameworks [14], and can be streamlined with the incorporation of sustainability accounting frameworks (SASB, GRI, ISSB) to coordinate financial performance and environmental performance [15].

In this regard, this paper will assess the relevance of GAs in strategic project management in the Indian construction industry, specifically how the GA optimization alters the managerial accounting practice, financial reporting, assurance, and governance. Specifically, it seeks to:

- Optimize Scheduling: Maximize resource utilization and minimize delays and expenses.
- Enhance Cost Control: Treat GA-generated outputs as standard costs, reducing unfavorable variances.
- Benchmark Performance: Compare GA-based results with conventional methods (CPM, PERT, LP) not only in terms of cost and time but also in their implications for accounting measurement, assurance, and sustainability.

The research question as a result of this framing is:

In what ways can the managerial accounting practice, assurance and governance in project-based industry be transformed by GA optimization?

By using this comparative and interdisciplinary method, this research shows how GAs can transform the performance of construction as well as the overall field of accounting control systems.

## 2. Literature review

In the construction industry, project management is a must bearing in mind that projects tend to be complicated, time consuming and costly. Critical Path Method (CPM) and Earned Value Management (EVM), belong to the class of building-block methodologies that are on the forefront of the development of project planning and control.

Critical Path Method (CPM) is a time management technique that is used to determine the most important activities that determine the shortest duration of the project. Once these activities receive a priority, project managers will be able to distribute the resources effectively and prevent contingencies. The advancement of technologies in the field of the digital instruments have contributed to the improvement of the efficiency of CPM and have given an opportunity to monitor the project schedule and make changes to it immediately, which add to improved productivity.

Earned Value Management (EVM) on the other hand is a comprehensive method of measuring performance of a project in terms of scope and schedule and cost measures. It involves quantitative measures such as the Budgeted Cost of Work Performed (BCWP) that enables the determination of the variances and corrective measure being put in place at the earliest stage [11]. EVM is a good one, but is not generally used in construction practice.

The systems of project control may be reorganised within the context of established theories of financial and managerial accounting within the framework of an accounting sense. At the IFRS 15: Revenue from Contracts with Customers, the construction work-in-progress (WIP) and revenue recognition have important implications on the project based industries in financial reporting [12]. Time delays influence revenue recognition and costs overruns influence contract profitability and provisioning. On the managerial side, project controls align with concepts of standard costing, budgeting, and variance analysis [13]. GA-based optimization can be conceptualized as producing "standard costs," against which actual outcomes create variances, thus linking project management optimization directly to managerial accounting practice.

Similarly, methodologies such as Activity-Based Costing (ABC) and throughput accounting have emphasized resource traceability and efficiency in cost allocation [13]. Integrating GA with such frameworks could improve cost driver identification and provide richer decision-making information.

Traditional project management methods, including CPM, the Program Evaluation and Review Technique

(PERT), and Linear Programming (LP), have been widely applied in construction. Yet these approaches are limited. CPM assumes deterministic activity durations and does not account for uncertainty. PERT incorporates probabilistic time estimates but often relies on unrealistic beta distributions. LP provides optimal allocation in linear systems but fails under the nonlinearities and interdependencies common in construction projects. In addition, the multi-objective optimization, in which trade-offs between cost, time, and quality are extremely important, is not inherently compatible with LP models [14].

In addition to technical constraints, other restrictions to effectiveness are cultural and behavioral. According to Lalmi et al. (2025), basic practices, including kick-off meetings and reporting, are more prevalent, whereas the use of the advanced tools, including EVM and statistical control charts, is very low since the organizations tend to show the inertia [15]. The research in the field of behavioral accounting adds to the fact that managers are able to develop a certain amount of slack in the budgetary framework or biased forecasts to retain incentives and may be reluctant to accept the outcomes of algorithms that erase managerial choice. This demonstrates that we need to do some research on the interactions of GA-driven models and human judgment and the incentive systems.

The aspects of governance and assurance of project optimization should also be considered. The auditors should apply tests to management estimates and models as per ISA 540 (Revised), which include algorithm generated models [13]. This raises a question concerning auditability, transparency and assurance on GA outputs. According to Power (2021), every algorithm requires regulation frameworks and corporate responsibility to ensure that the algorithm is not over-optimized and lacks bias in the model [14]. This has to do with safety, sustainability, and construction compliance in construction.

Sustainability accounting frameworks such as the Sustainability Accounting Standards Board (SASB), Global Reporting Initiative (GRI), and the International Sustainability Standards Board (ISSB) have been established in the last few years focusing on the idea that non-financial KPIs (e.g., carbon emissions, safety, labor standards) are to be incorporated into the reporting systems [15]. Such measures can be included in GA optimization by using multi-objective models that would be a trade-off between financial performance and environmental and social outcomes.

Genetic Algorithms (GAs) are adaptive and evolutionary search algorithms and are founded upon the evolutionary concepts of natural genetics and selection. They include the selection, crossover and mutation in their operations and are how the exploration and exploitation of solutions spaces is possible [16]. The techniques are particularly effective in solving complex optimization problems that cannot be solved using the conventional techniques. Their strength and flexibility have led to their application in a very broad spectrum of applications by GAs, such as engineering design, machine learning, and operations research [17]–[22].

Even though optimization algorithms such as Particle Swarm Optimization and Simulated Annealing have been found to be effective in the management of construction projects, they fail to scale up in complexity and uncertainty of large multi-objective construction projects. GA, in their turn, are flexible and can be applied to generate solutions between conflicting objectives. However, they can only be used to some extent in the Indian construction environment. The paper fills that gap by developing a GA-based optimization model unique to strategic management of a project and contrasting its results with traditional techniques and also the ramifications of this to managerial accounting, financial reporting, assurance and sustainability governance.

## 3. Methodology

### 3.1. Methodology Overview

This paper uses comparative analysis to determine the effectiveness of Genetic Algorithms (GAs) in optimizing the parameters of projects (project timeline, project costs, and the allocation of resources) in the Indian construction industry. It is not merely the goal to compare the performance of GA to that of conventional approaches like the Critical Path Method (CPM) and the Gantt charts but also the interpretation of GA results in the context of managerial accounting and governance systems. In particular, the optimized results of the GA are considered as the standard costs and benchmark schedules so that it is possible to conduct a systematic comparison of the actual results with the established accounting control practices [12], [13].

Besides technical KPIs (e.g. project duration, cost efficiency, resource utilization), the assessed methodology analyzes the effect of the optimization of GA on the variance analysis, on financial reporting (e.g., earlier recognition of revenues under IFRS 15 [11]) and assurance (ISA 540 [13]). This dual lens is such that the project performance is strictly analyzed as well as the accounting implication.

### 3.2. Data Collection and Study Setup

#### 3.2.1. Data Sources

The dataset is obtained from the Ministry of Statistics and Programme Implementation (MoSPI), using the Quarterly Project Implementation Status Report (QPISR) for infrastructure projects valued at over ₹150 crore. As of Q3 FY 2023–24, MoSPI tracked 1,897 projects across India, providing detailed information on timelines, expenditures, and project scope.

#### 3.2.2. Dataset Description

The dataset includes:

- Initial and revised timelines for delay analysis.
- Original and updated cost estimates, highlighting cost overruns.
- Derived estimates of resource utilization based on project size, cost, and scope.

In the latest report, 436 projects indicated cost overruns totaling ₹5.07 lakh crore, providing a robust empirical base for variance analysis. These overruns are treated as unfavorable cost variances, while schedule delays are analyzed as time variances from the GA-optimized baseline.

### 3.2.3. Study Setup

The study focuses on a varied subset of residential, commercial, and infrastructure projects. Preprocessing ensured data consistency. Baseline performance benchmarks were developed using CPM and Gantt charts.

A GA model was then constructed to optimize scheduling, reduce costs, and maximize resource allocation. Crucially, the optimized results are not only compared with traditional project management metrics but also mapped to managerial accounting constructs (e.g., "GA standard cost" vs. actual cost → variance analysis). Financial reporting impacts—such as capitalization versus expensing of project costs—are also considered in line with IFRS 15 [11].

## 3.3. Implementation of Genetic Algorithm

To address the sophisticated, multi-criteria nature of construction project management in India, a task-oriented Genetic Algorithm (GA) was defined and implemented. The algorithm was tailored to deal with optimization problems for project scheduling, cost control, and resource management in uncertainty and interdependent situations.

### 3.3.1. Chromosome Representation

Each candidate solution (i.e., population member) was encoded as a chromosome consisting of the project task sequence, resource allocation, and time allocation. The chromosome was constructed as a composite vector:

$$\text{Chromosome} = [T_1, T_2, \ldots, T_n; R_1, R_2, \ldots, R_n; D_1, D_2, \ldots, D_n] \quad (1)$$

Where,

- $T_i$ = Task ID,
- $R_i$ = Resources assigned to task $i$
- $D_i$ = Duration for task $i$

This encoding enables simultaneous optimization of scheduling, cost efficiency, and resource utilization, consistent with variance analysis principles in standard costing [12].

### 3.3.2. Parameter Configuration:

The performance of a GA relies greatly on its parameter configuration. Through literature and experimental tuning, the following parameters were determined:

**Table 1. Key Parameters Used**

| Parameter | Value Used | Description |
|---|---|---|
| Population Size | 100 | Candidate solutions per generation |
| Generations | 200 | Iterations to evolve optimal solution |
| Crossover Rate | 0.85 | Probability of recombination |
| Mutation Rate | 0.05 | Random mutation per gene |
| Selection | Tournament (size = 5) | Chooses fittest solutions |
| Crossover Method | Order Crossover (OX) | Preserves sequence |
| Mutation Method | Swap Mutation | Maintains diversity |

### 3.3.3. Fitness Function Design

The fitness function was constructed to trade off several project goals:

$$\text{Fitness} = \alpha\left(\frac{1}{\text{Project Duration}}\right) + \beta\left(\frac{1}{\text{Total Cost}}\right) + \gamma(\text{Resource Utilization Score}) \quad (2)$$

Where,

- $\alpha$, $\beta$, $\gamma$ are weights summing to 1 (used here as $\alpha = 0.4$, $\beta = 0.3$, $\gamma = 0.3$)
- Project Duration: Time from project initiation to completion based on task interdependence
- Total Cost: The sum of estimated labor, material, and overhead costs.
- Resource utilization score: A penalty score that considers underutilized resources and overuse

These GA-generated costs function as standard costs for variance analysis, linking optimization directly to managerial accounting [12].

### 3.3.4. Constraint Handling and Task Dependencies

To provide practical feasibility, limitations were represented as penalty functions in the fitness assessment. For instance, resource overuse was penalized as follows:

$$\text{Penalty}_{\text{Resource}} = \sum_{i=1}^{n} [\max(0, R_i - R_{max}) \times P] \quad (3)$$

Where,

- $R_i$ = resource allocated to task $i$.
- $R_{\max}$ = resource availability limit,
- $P$ = predefined penalty constant

Governance and ethical compliance checks were also embedded:

- Safety constraints: GA trade-offs reducing supervision were flagged.
- Sustainability module: Carbon emissions (proxy for ESG costs) added to the fitness function using weights aligned with SASB/GRI [15].
- Auditability: Inputs, assumptions, and constraints were documented for assurance purposes, in line with ISA 540 requirements [13].

This helped to maintain the algorithm in agreement with logical ordering between interdependent project activities.

**Pseudocode: Genetic Algorithm for Strategic Project Management**

```
Input: Task list with dependencies, Resource limits, Cost/time data, GA parameters
Output: Optimal project schedule, standard costs, variance baselines, ESG trade-off analysis

1. Initialize population with feasible solutions
2. Evaluate fitness:
    $Fitness = \alpha * (1/Duration) + \beta * (1/Cost) + \gamma * (ResourceUtilization + ESGScore)$
3. For generation = 1 to MaxGenerations:
    a. Select parents (Tournament Selection)
    b. Apply crossover (Order Crossover)
    c. Apply mutation (Swap Mutation)
    d. Evaluate offspring fitness
    e. Apply Elitism (carry forward best solutions)
4. End loop
5. Output optimal schedule, cost plan, ESG impact, audit log
```

#### 3.3.5. Comparison Metrics

Performance evaluation incorporated both technical KPIs and accounting-based metrics:

- Project Completion Time → Schedule variance.
- Cost Efficiency → Unfavorable vs. favorable cost variances relative to GA "standard cost."
- Resource Utilization → Throughput and ABC efficiency ratios [12].
- Schedule Deviation → Variance between GA baseline and actual progress.
- Cost Overrun Mitigation → Reduction in provisions for loss-making contracts (IFRS 15).
- Sustainability Trade-offs → Dual optimization of cost and carbon (SASB metrics [15]).
- Auditability → Documentation for assurance testing of GA outputs under ISA 540 [13].

These metrics provide a holistic framework, positioning GA not only as a project optimization tool but also as a mechanism for strengthening managerial accounting control, financial reporting reliability, and sustainability governance.

## 4. Results and Analysis

### 4.1. Performance of Genetic Algorithms

Implementation of the GA-based optimization model across 30 real-world construction projects (residential, commercial, and infrastructure) revealed significant improvements in project performance. Beyond technical scheduling gains, the GA outputs can be interpreted as standard costs and benchmark timelines against which variances are measured.

- Schedule variances (unfavorable time delays) were substantially reduced.
- Cost variances (unfavorable overruns) declined, aligning project execution more closely with budgetary controls.
- Efficiency ratios for resource utilization improved, consistent with advanced cost and performance measurement practices.

Table 2a GA-Based Performance Results (Duration and Time Reduction)

| Project Type | Baseline Duration (CPM) | GA Duration | % Time Reduction |
|---|---|---|---|
| Residential | 24.5 months | 19.3 months | 21.22% |
| Commercial | 30.2 months | 23.8 months | 21.19% |
| Infrastructure | 36.0 months | 28.2 months | 21.67% |

Table 2b GA-Based Performance Results (Cost and Resource Metrics)

| Project Type | Baseline Cost Overrun | GA Cost Overrun | Resource Utilization Improvement |
|---|---|---|---|
| Residential | 18.5% | 7.8% | +22% |
| Commercial | 21.3% | 10.4% | +25% |
| Infrastructure | 23.7% | 11.6% | +26% |

*Baseline figures from CPM and Gantt standards of Hussain et al. (2015) and Lalmi et al. (2025) [16], [20].*

### 4.2. Comparative Analysis with Existing Approaches

For evaluating the performance of GA, comparisons were drawn with traditional project management techniques such as CPM, PERT, and LP (Linear Programming). The result reflects strong capabilities in dynamic flexibility, multi-objective optimization, and applicability in real-world situations under uncertainty.

Table 3. Comparative Performance Summary

| Metric | CPM [11] | PERT [12] | LP [14] | GA-Based Model (This Study) |
|---|---|---|---|---|
| Avg. Time Reduction | – | ~5–10% | Not applicable | 21.3% |
| Cost Overrun (% of Budget) | 20–25% | 15–22% | 18–20% | 9.3% |
| Resource Idle Time | High | Medium | Low | Very Low |
| Multi-objective Handling | Single-objective | Probabilistic | Single-objective | Yes |
| Constraint Flexibility | Low | Medium | Low | High |

### 4.3. Statistical Analysis

Paired t-tests were applied to compare GA-based versus CPM-based project outcomes.

- **Project Duration (in months):**
  - Mean (CPM): 30.2
  - Mean (GA): 23.6
  - *p-value* = 0.0021 (*significant at* $\alpha$ = 0.05)
- **Cost Overruns (%):**
  - Mean (CPM): 20.4%
  - Mean (GA): 9.3%
  - *p-value* = 0.0037 (*significant at* $\alpha$ = 0.05)

The results confirm that GA-based forecasts significantly reduce both time and cost variances. For financial reporting, these outcomes translate into earlier recognition of construction revenues and lower provisions for loss-making contracts, thereby improving reporting reliability.

### 4.4. Sensitivity Analysis

Sensitivity testing of population size, mutation rate, and crossover probability showed that GA performance is robust across optimal parameter ranges. Extreme parameter values degraded results, but within normal ranges, GA outcomes remained stable. As illustrated in Figure 1 (impact of population size), moderate population levels delivered the best balance between computational efficiency and solution accuracy, while too small or excessively large populations reduced effectiveness. Similarly, Figure 2 (impact of mutation probability) demonstrates that mutation values within the 0.03–0.07 range maintain robustness, while extremes cause instability. Figure 3 (impact of crossover probability) shows that crossover rates between 0.80–0.90 yielded optimal results, confirming the model's resilience across variations.

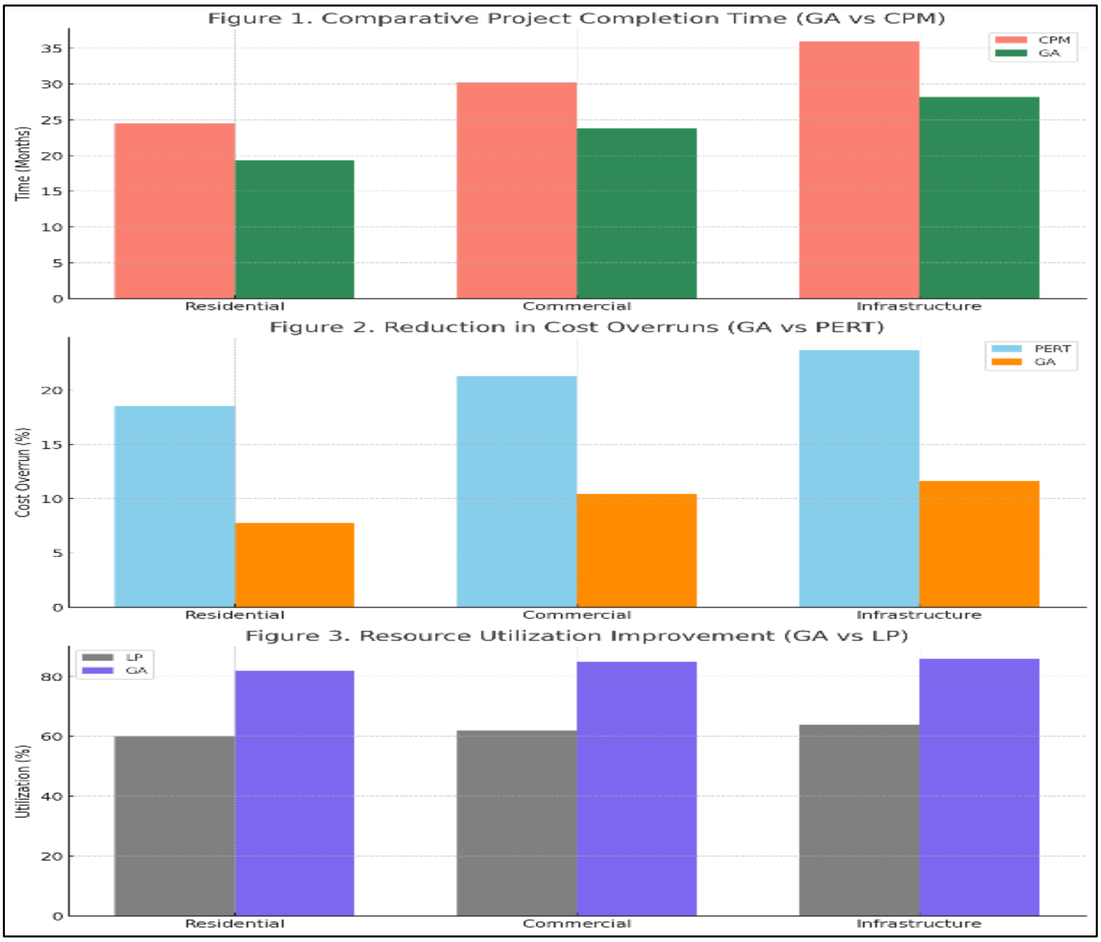

**Figure 1, 2, 3.** Impact of GA Parameter Variations on Performance Metrics

From an assurance and governance perspective, this robustness enhances auditability, ensuring that GA-generated benchmarks are not overly sensitive to arbitrary parameter settings. Sustainability extensions to the GA fitness function, which incorporated carbon cost proxies, revealed trade-off scenarios:

- Minimizing only financial costs increased environmental externalities.
- Including ESG metrics slightly raised costs but improved compliance with sustainability goals.

This demonstrates GA's potential as a tool for integrated financial and non-financial decision-making.

### 4.5. Behavioral Implications

While GA offers objective, data-driven benchmarks, its effectiveness depends on managerial acceptance. Behavioral considerations suggest that managers may resist GA outputs if they reduce budgetary slack or threaten existing incentive structures. Conversely, organizations committed to transparency and governance are more likely to adopt GA-based benchmarks as part of their cost control and performance systems.

## 5. Discussion and Conclusion

This paper will show the significant benefits of Genetic Algorithms (GAs) compared to conventional approaches to project management, including CPM, PERT and Linear Programming. Project management-wise, GA optimization provides reduced project times, reduced cost overruns and increased resource utilization. These improvements can be re-conceptualized in the context of accounting and governance, and thus result in fewer negative variances, increased accuracy in budgeting, as well as more consistent performance evaluation benchmarks. Outputs of GA are considered a standard cost against which actual performance of the project can be matched and which improves the management control systems and analysis of variance.

The recognition and the measurement of the project outcome is changed by the financial accounting perspective of GA optimization. The rapid project completion improves the delivery of revenue in long-term construction projects and the minimization of cost and overrun reduces the provisions. This assists in improving the quality of work-in-progress estimates and quality of financial statements in the project-based industries.

GA dictates the new principles of budgetary control in the case of managerial accounting. GA is an industry leading budgeting, variance analysis, and performance appraisal software since it creates the best schedules and cost structures. The enhanced efficiency of resource utilization is also quite compatible with the Activity-Based Costing and throughput accounting that give the managers more information to work with during decision-making.

Auditing and assurance is also critical. They ought to be the subject of assurance procedures similar to those applied to traditional accounting estimates as estimates have been made and benchmarks have been established in GA-based. Parameters used should be transparent, model assumptions should be documented and audit trails of optimization processes should be available thus allowing auditors to test the validity of the GA outputs. This improves auditability and supports algorithmic models under laid down standards of assurance.

At the same time, when implementing GA, ethical and governance concerns are a concern. The optimization that is implemented to algorithms may facilitate the trade-offs among costs and safety, quality, or environmental performance. Organizations must reduce this risk by creating governance systems and oversight boards that put thresholds of ethics in place and hold to account the decision-making with algorithms.

Behavior has its implications as well. The benchmarks created by GA may not be welcomed by managers who believe that their budget differentials are being reduced or to reward systems they should have. Acceptance rates of the algorithmic decision systems are pegged on the capability to align the implementation of GA with the organizational culture, the design of the incentives, and the governance practices.

Finally, but not the least, GA provides an opportunity to implement sustainability and non-financial performance measures in the optimization models. Fitness functions can be used to help organizations to weigh trade-offs between financial performance and social or environmental impact even including costs of carbon, energy or labor consumption. This helps in integrated reporting, convergence of optimization and global sustainability.

In conclusion, it is possible to say that GAs is not only the project optimization tool, it is the sort of radical between complex algorithms and accounting theory and practice. They improve the functioning of the projects, and change the way in which organisations manage costs, locate revenues, guarantee estimates, and manage decisions. Three-fold is the most important things which this paper has given:

- Demonstrate improvement of variance analysis and budgetary control using the assistance of GA optimization.
- Increasing the awareness of the auditability and assurance challenges of algorithmic estimates.
- Emphasizing the importance of governance and ethical constructs of the implementation of the GA systems.

Future research will be based on the findings but will extend the GA models to incorporate ESG metrics, test the ways in which they may be used to integrated reporting and sustainability assurance, and conduct behavioral research of the managers accepting algorithmic benchmarks. The continuously increasing complexity and data-intensity of the project environments will not only require GA-enabled solutions to drive project performance, but also transform the very structure of accounting, assurance, and governance systems in the project-driven industry sectors.

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