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Original Article

# Impact of Owners' Involvement in the Success of Indian Infrastructural Projects

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**Abstract**

Press reports are repeatedly stating that most of the Infrastructure Projects of India are running behind schedules, and obviously with cost over rums. Such time and cost overruns not only impact the expectation of the stakeholders adversely but shall hamper the development prospects of the country significantly. Often the Project management is blamed for their failures in meeting the project objectives. But the base organizations that champion the projects, who conceive them, arrange financial support and then handover to the project management professionals for getting them carried out are not active players in the project execution sphere. The base organizations which champion the projects and are of a permanent nature are defined as Project Owners by literature, while the Project management organizations are of temporary nature. Such owners are not aware of the roles and responsibilities that they should fulfil to ensure project success. The negative impact on time and cost overrun that could be achieved by the increased involvement and interventions by Owners is not well established even.

This paper aimed to find out the key areas that call for the involvement of owners in various infra structural projects, and to assess how far the owners get involved in the management of public projects at present, in selected Project sites within India, by conducting a Questionnaire survey. Help from previous published works helped in designing the instrumentation for the survey. It was intended to find out the opportunities for improvement from the survey results. The results exposed a very strong negative correlation between the Owner's contributions/ level of involvement with Time over run and Cost overrun. This revealed a significant opportunity for improvement in the success prospects of Indian Infra Projects.

***Keywords:*** *Infra Structure Projects; India; Project Success; Time Over Run; Cost Overrun; Project Owner; Project Sponsor; Owners' Involvement*

## Introduction

As many as 479 infrastructure projects, each one worth Rs. 150 crores or more, had been hit by cost overruns totalling more than Rs 4.4 trillion, according to a report (PTI, 2021). Said report also added that of the 1,770 such projects, 479 had reported cost overruns and 541 were delayed. Out of 541 delayed projects, 109 projects were delayed by 1-12 months, 119 projects by 13-24 months, 192 by 25-26 months, and the balance 121 was lagging by over 61 months. Another report (Sen & Nihalani, 2021) unfolded that the projects approved in the water resources, telecommunications, and railways sector had overshot their original costs by the maximum share, while all the projects in five sectors, including telecommunications, defense, and atomic energy were running behind schedule. Needless to mention that time and cost overruns adversely impact the expectation of

the stakeholders, apart from incurring huge financial losses.

In the Indian public projects sphere, projects are often championed by a base organization that could be some public body or agency or department or PSU. These champions are often self-sponsored or at times partnered with third-party sponsoring agencies. Such base organizations are permanent, in contrast to project organizations which are temporary. Projects are executed by these base organizations to cater to the requirements of a specific beneficiary group as well as to satisfy the expectations of an extensive stakeholder group. The project specification shall have to match the beneficiary requirement as well as the stakeholders' expectations. The base organization which champions the project will only assist the project management office in providing leadership towards the completion of project tasks and may even maintain a portion of the project plan. Getting the project executed is the job of the project management office and is realized often by offloading the various packages through different modes, to contracting agencies. The agency thus championing the project is called the project owner. It is the owner who bears the business responsibility for successful project implementation. The project management organization just performs that project assignment, which is assigned to it by the base organization. We may call the base organization responsible for the project as the owner of the project.

Generally, project success is seen as the achievement of the project goals like schedule, budget and quality as well as the achievement of the project missions. The mission is what the project is eventually intended to accomplish, from the viewpoint of beneficiary expectation and stakeholder groups expectation. The project manager can only ensure conformity to the pre-determined project triangle, whereas the owner enjoys an extra edge in reshaping the very triangle. The PMBOK guide of PMI which has as its stated scope the management of a single project is largely written from the perspective of the project manager and his team engaged with managing a single project. No reference is made to the role of the project owner, project stakeholders and glossary, as the group that provides financial resources. But a project owner is not just a sponsor, though often both roles converge into a single entity. But it is seen in the literature that many authors and researchers refer to the owner as sponsor.

In actual practice, it is seen that the owners conceive the project, and get the DPR made by engaging some consultant and after securing the allocation of a block budget, organize the project management team to carry on the work forward, starting by initiating acquisition of basic resources including land, tendering out the execution, etc. Once the project management team is entrusted with the responsibility of project completion, the owners' role gets limited to a periodical progress review ritual and responding to the requests for additional time and budget if not major specification changes. The extent of real-time involvement or continuous interventions required to be made is not clear to the owners, nor the knowledge about the impacts such involvement could bring in is prevalent.

This paper first tries to identify the key areas that call for the involvement of owners in various infrastructural projects and to assess the current level of owner involvement in the management of public projects within the specific context of India. Then it attempts at testing through surveys, the impact of owner’s contribution in the project success as measured in terms of time and cost overruns. From knowledge thus gained, it also intendeds to unearth the opportunities for improvement and to draw takeaway lessons on how to utilize such opportunities.

## Methodology

The study was planned to be done among the prominent project owners concerned with the infrastructure project segment of India, which included the various Union and State government departments, public sector units, and local self-bodies comprising of metros, corporations, municipalities and panchayats. Care was taken to include the projects from all the prominent infra sectors like highways, bridges, railways, water systems, steel /power plants, institutional and residential buildings, etc., which were of varied budget outlays and completion periods.

A Literature survey was conducted to understand how far the development of knowledge had grown in pursuit of clarifying the ideal roles and responsibilities of the owners in the project management sphere. From this, the key roles and responsibilities to be fulfilled by the owner for ensuring successful completion of projects could be drawn out. This information became helpful in devising the instrumentation for checking the compliance of the owners to fulfilment of the ideal roles that were postulated by the published works. With this, the stage was set to inquire from the owners of the active projects selected by means of a questionnaire survey. The survey results were analysed further to obtain the answers sought by this study.

**Review of Literature:**

No research works were found as published prior to 1994, focusing on the owners of projects. The earliest of them, a study by Bubshait (1994) found that owner involvement is essential to project quality. Success or failure is, in many cases, related directly to the level of owner involvement. Efficient owner involvement will improve the total quality of constructed projects. Another 1998 article (Morris, 1998) stated that the responsibility for project success in firms lies typically with project owners, who hold the business case. Several other contemporary authors like Jiang, Klein and Chen (2001); Lechler (1998) had tried to expand the roles of the project executive sponsors beyond just financing by adding several other key functions that appear to have a direct bearing on project success, which could be seen as efforts to carve out the concept of 'project owner' with roles beyond just sponsoring. Invariably all of them converged on a single argument that the additional key functions assigned to the 'owners' would be potent enough to positively affect the project prospects.

Neap and Aysal (2004) had detailed the various roles and responsibilities of the project owner which also included establishing his needs and objectives, determining the overall project budget selection of the project management professionals, making his requirements understood clearly by other parties, making decisions on all recommendations, on order placements, on the selection of contract options, providing coordination for the project, set criteria about total budget, payments and project end date, apart from making timely payment of all bills related to the project.

Like many other similar studies that occurred later, Shenhar and Stefanovic (2006) also pointed out the fact that successful projects have had enjoyed the support of top management, in the form of the project owner. They added that any deployed project should be well aligned with the strategy and resources available of the base organization that champions it, coupled with top management support. Such conditions can maximize the chances of fetching appropriate attention and resources for the project, thus enabling the project manager to execute the project successfully. Dalcher (2016) impressing upon the roles of owners stated that there is a need for a close relationship with the project manager to ensure that the business case remains viable and that the benefits are both relevant and realizable. A considerably large volume of literature was seen addressing the relationship between the project owner /sponsor and the project manager, stressing that it should be aimed at keeping the project in alignment with the project objectives (Salama *et al*., 2020).

The literature defined the 'project owner' as the one with full responsibility for the project, who could drive decision making and had to ensure single-handedly, the alignment of the project with organizational strategies. Thus, literature portrayed the project owner as the most significant contributing party from the concept till completion of a project, and with a role not limited to playing the role of a sponsor or investor. In such a case the positive contributions of the project owner would have a direct bearing on preventing or reducing overruns in time, cost or both.

***Questionnaire Survey***

Instrumentation was the first step to be made before attempting the survey. The thorough literature survey done earlier could bring out exhaustively the key roles and responsibilities any project owner should fulfil, which are inevitable for the success of that project. With that understanding, a questionnaire was prepared to comprise 12 questions. Questions

were so designed to prevent threats to their validity, as suggested by Fowler Jr. and Fowler (1995). As the respondents were all professionals, question clarity and consistent meaning to all respondents had to be ensured as stated by Tourangeau (2000) and indeed the questions asked information that the respondents could access readily from their experience. The questions demanded that the respondents rate their agreement on the involvement level of the project owner against 12 simple role element statements in a Likert scale 1-5, (1 - strongly disagree, 2 - disagree, 3 - neither disagree nor agree, 4 - agree, and 5 - strongly agree). A pilot test was conducted with the said questionnaire involving 25 professionals in a single project site, adhering to the stress given by Wolfe (2002) that more disasters in market research happen through bad questionnaires than anything else, and most of these failures can be traced to inadequate piloting. The pilot test resulted in a few modifications that had to be made in the text of certain questions. The finalized questionnaire is annexed at Annex-1.

Sample selection was the next step. From a master list of over 300 different project owners listed in a recent report on the ongoing Indian infrastructure projects, a list of 30 public agencies, each of which was the project owner for more than 5 different projects that were completed in the recent 3-year period (from April 2018 to March 2021) was selected. Car was taken to ensure that the said list included departments of union and state governments, public sector units, and local self-bodies. It was also ensured that the selected projects represented all among the sectors of roads and bridges, railway, institutional building/housing, process plant construction, power system and water supply irrigation. IT-related projects were not considered, they are being of shorter gestation compared to others. Project owners were selected in such a way also that, all 4 categories; large, big, medium, and small based on the usual size of individual projects executed were tried to be included in almost equal numbers. Large (L) owners were those handling projects of over INR 300-400 million, Big (B) of INR 200-300 million, Medium (M) of 100-200 million, and Small (S) of INR 10-100 million. Projects of value less than INR 10 million being insignificant in absolute values of overruns and those above 400 million which were less in numbers were not considered in the study. But due to several practical difficulties related to accessibility, response levels, population mix itself not being uniform, and expenditure involved, the composition of the final selection couldn't be an ideal mix but consisted of 4 large, 7 big, 14 medium, and 5 small project owners, which was somewhat representative of the population mix. After selection of the owners, data pertaining to the average time overrun and cost overrun as percentages of the baseline values were collected from all the owners, considering all the projects that were completed by them in the last 3-year window period. Most of such data were already available in the public domain, and the rest were collected from the database of the various sources within such owner agencies. Care was taken to not consider the delay periods associated with land acquisition and statutory permits, as they were not relevant for all projects, and such delays varied widely from case to case, due to the differences inherent in the social and political connotations of associated projects.

Respondents were fixed in such a way that from each Project site, the chief executives / Heads from (a) the design agency, (b) project management team, (c) consultant, (d) safety office, (e) quality assurance team, (f) main contracting agency and the (g, h) topmost two subcontracting groups (by work value in INR), were selected with criteria that they were associated with more than half the number of total projects completed by the respective owners during the 3-year window period. Apart from these 8 respondents, a representative from the beneficiary group (chief of the user dept / local body councillor in case of public users) also was made a respondent. Thus, from each project owner side, 9 respondents were identified to evaluate the involvement of the owner of the projects they were associated with. The representative of the author or the author himself had identified the respondents from each project owner area and had personally contacted them to get the questionnaire forms filled, thus totalling 270 responses.

**Results & Discussion:**

Corresponding to each owner, the ratings against each of the 12 questionnaire points, were collected from 9 different respondents. The ratings were tabulated in Excel sheets separately for all the 30 responding owners. On each sheet, the average rating for each questionnaire point was computed from the 9 ratings obtained for each. All such averages of the 12 questions were added up to arrive at the overall score of the owner, which in totality represented the level of involvement of that owner in fulfilling all roles against the maximum possible score of 60. From this, the percentage of involvement was easily visible. The percentage of involvement levels of all 30 owners were tabulated then, and the results pointed out certain open facts as follows.

The average owner involvement was around 65% in large projects, followed by 55% in small projects. The big and medium projects also showed an owner involvement of 52 % each. This showed that there was ample scope for improvement among all levels of project owners. Among the different owner sizes, the variance in involvement levels among individual owners of the same size is the least among large project owners (20%). The variance in involvement among individual owners in the big and small types is just double (40%), whereas for the medium type owners it is still high at 48%.

For large projects, the level of accountability, as well as the monitoring pressure from very high-level authorities are much higher, and that may be driving the owners to deliver more involvement. Further, the higher level of experience possessed by the individuals donning the owner roles also should have acted in favour of the increased owner involvement seen in the project affairs. The relatively smaller variance in the involvement levels between the different owners, irrespective of the several differences in the nature of the work, geographical locations, cultural differences, etc., points out reasons for an enhanced awareness among owners and/or adherence to a certain degree of professionalism as common traits among them.

The smaller types of projects also show relatively better involvement of owners than medium or large-scale project owners (Lloyd-Reason & Mughan, 2002). The short gestation periods, pressurizing the owners to deliver in a short time, as well as the persistency in demands from stakeholder groups local to the project theatres, the possibility of confrontation with the local beneficiaries, etc., pose as the main drivers that goad the owners into relatively better involvement compared to the medium and large types. But the variance existing among the various small owners, though better than the medium players, is just double that among the large players. One reason is the inherent difference in locations, conditions, project nature, people's nature, etc., but differences in attitudes, focus, priorities, etc., among the owners of this type can also be of significance. No owner is displaying a level of involvement of less than 50%.

The behaviour of the owners of big and medium-sized projects displayed a huge lack of consistency that had resulted in a poor level of involvement (Hankinson, Bartlett & Ducheneaut, 1997). Several of the owners are doing just around 40% right now. With the number of projects being much higher in these segments, the effect of such poor involvement will have a greater impact on the overall project prospects of the country.

To understand the impact of the owners' contribution on the project's success as measured in terms of time and cost overruns, the overall score representing the level of contribution or involvement by the owner was plotted separately against the average time overrun result and average cost overrun result registered by the same owner in the last 3-year period. Thus, it was tried to explore the correlation between the score and time overrun as well as between the score and the cost overrun.

For the large type project owners, time overrun and the contribution by the owners (score) show a very strong negative correlation with Pearsons coefficient of (-) 0.98 as in Figure 1.

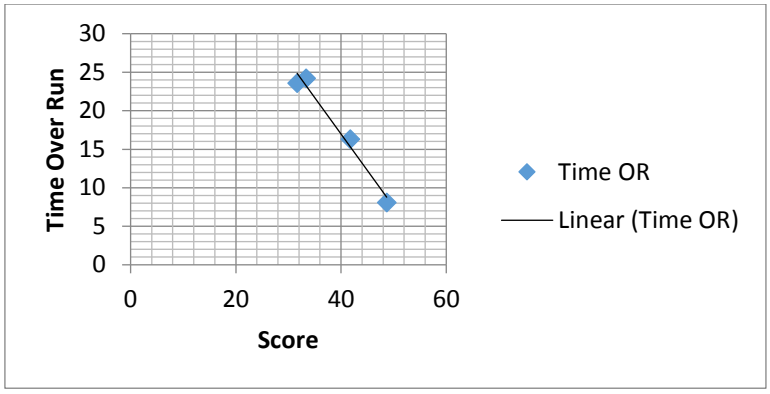


**Figure 1:** ***Owners' Involvement Level V/S Time Overrun, Large Projects***

For the same large type project owners, see Figure 2; cost overrun and the contribution by the owners (score) also show a strong negative correlation with Pearsons coefficient of (-) 0.75.

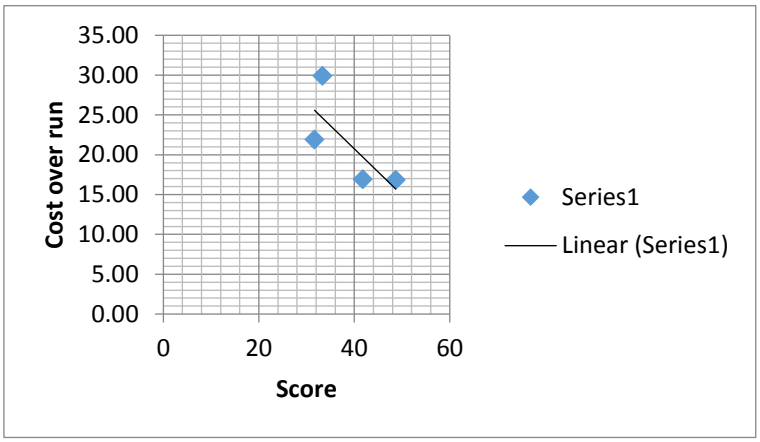


**Figure 2:** ***Owners' Involvement Level V/S Cost Overrun, Large Projects***

This indicates that with the higher level of involvement and contribution by the owner in fulfilling their characteristic duties, the time and cost overruns can be minimized. The slope of the curves is heading towards overrun values lower than 10% if owner contributions were maximized. While it remains a fact that the elimination of overruns altogether is not possible by the maximization of the owners' contribution alone, such an improvement can go a long way in minimizing them to affordable limits. Similarly, the correlation was tried with other types, i.e., big, medium, and small type project results also, and the strong negative correlation persisted irrespective of the type, as shown in Table 1.

**Table 1:** ***Pearson's Correlation Co-efficient of the Level of Owners' Contribution and Time, Cost Overruns of all Size Owners***

| | **Pearson's Correlation Co-efficient of Score (Level of Owner Contribution) and Time, Cost Overruns of all Size Owners** | |
|---|---|---|
| **Owner Type** | Time Overrun | Cost Overrun |
| **Large** | -0.9880854 | -0.7456472 |
| **Big** | -0.9065521 | -0.7624743 |
| **Medium** | -0.8153379 | -0.7471878 |
| **Small** | -0.7691458 | -0.9274011 |

General trends showed that there was a very strong correlation between the owners' contributions and their level of involvement with time and cost overruns in the context of Indian public sector projects. Thus, the results were strong pieces of evidence to corroborate the portrayal found in literature of the strength of owners' involvement in ensuring project success. So, it could be inferred with evidence that the singular positive contributions by owners could have a direct bearing on preventing or reducing overruns in time, cost, or both in the context of Indian public projects.

**Conclusion:**

The level of involvement, or in other terms, positive contributions by the owners of the various Indian public projects is just around 50% in general, displaying ample scope for improvement.

There is a strong negative correlation between the degree of contribution or level of involvement by the project owners and the project success measured in terms of time and cost overruns, irrespective of the size, nature, type, location or sector in which the projects reside.

So, the trends show that if the level of involvement with positive contributions by the project owners is maximized, that alone can hold the time and cost overruns to within 10% of the baseline level. In such a case, only 10% will be left for all other agencies to focus on for reduction, giving hope that a major fraction of this 10% can be easily dealt with by proper project management actions.

The study not only exposed the single most important factor that is responsible for the poor performance of public projects in India, i.e., insufficient positive contributions by the owners, but also revealed the existence of a tremendous opportunity for improvement in the execution of public projects in the Indian public sphere, with assured success in terms of time and cost. This study could help policy formulators and administrators effectively select the proper owners who might affect the success of a project through their appropriate involvement and proper contributions. Shifting the spotlight from the project manager to the project owners by all stakeholder groups would go a long way in brightening the prospects of projects in the Indian public sector.

**Conflict of Interest:**

The authors declare that they have no conflict of interest.

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