

Effective Organizational Structure for Construction Industry: Case Study

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Abstract: This Paper is intended to describe the various types of factors affecting the effectiveness of the organizational structures used in the different types of construction project. Thus the factors of organization affecting the effective working of project can be determined. These factors can be proposed for improvement for both private as well as for Public project. The ten main factors & their subfactor are determined through literature review. Thought all ten factors are responsible for the effectiveness of organization; some factors are critically responsible for working of organization. These factors will going to determinethrough this paper. Thus, necessary recommendation will be given for the respective organizations. Thus this paper can be helpful to improve the characteristics of organizations, which can be implemented in future, for major construction projects.

I. INTRODUCTION

Organization can be defined as group of people who must coordinate their activities in order to meet organizational objective. The organisation for construction project is temporary. Organizing for project management requires flexibility because of the uniqueness of each project. Some Important considerations for selection of organisation are project scope and complexity, time schedule, Geographic location, contract terms, financial arrangements, and so forth. This Paper will concentrate on studying the organizational structure of the different construction projects. The report from the investigations of case studies of Public & private construction projects aims further to improve the characteristics of organisations, which can be implements in the future major construction. In addition, comparison can be done between organisations of Public & private construction projects.

II. LITERATURE REVIEW

Important factors affecting the organizational structures include: (1) Project Size and Project Duration (3) Organizational Experience (4) Resources (5) difference in projects (6) Technology (7) Financial Uncertainty (8) NO. of projects (9) Cost and Schedule control.^[1]

The logical process for organization structuring. The first step is to analyse the project situation-its goals and objectives, external influences, technology and phase. To be effective, the organizational structure should, Establish clear responsibility for external interfaces with engineering, purchasing and operations, Provide single point of responsibility at lowest practical level, Integrate craft, engineering, planning, and materials resources at the lowest practical level, Establish and enforce craft discipline priorities consistent with the construction phase

of the project, Limit manageable spans of control, Assure clear and effective reporting relationships, Assure most effective utilization of available management, support and craft resources.^[8]

Organizational factors which greatly influence the project success. The organization factor of grouped as organization structure, staffing, client relation, attitude towards risk, communication and expectation.^[9]

The different factors, those are affecting organization selection. Forty three factors were prepared to be surveyed in the questionnaire. Selected factors to be surveyed: 1. Project size. 2. Project length. 3. Experience with project management organization. 4. Philosophy and visibility of upper level management. 5. Project location. 6. Available resources. 7. Unique aspects of the project. 8. Diversity of product lines. 9. Rate of change of the product lines. 10. Interdependencies among subunits. 11. Level of technology. 12. Presence of economies of scale. 13. Organizational size. 14. Clear location of responsibility. 15. Ease and accuracy of communication. 16. Effective cost control. 17. Ability to provide good technical supervision. 18. Flexibility of staffing. 19. Importance to the company. 20. Quick reaction capability to sudden changes in the project. 21. Complexity of the project. 22. Size of the project with relation to other work in-house. 23. Form desired by the owner. 24. Ability to provide a clear path for individual promotion. 25. Using familiar unit grouping. 26. Requiring specific type of experience for designated positions. 27. Assigning authority. 28. Managers experience in simultaneous projects. 29. Information from simultaneous projects 30. Effective project manager's personality 31. Project manager authority should be commensurate with responsibility. 32. The choice of project management authority structure. 33. How high project manager reports in the overall company depends upon. 34. The trust of employees in managers. 35. Defining the objectives. 36. Selecting the size of each units and work groups. 37. Adding the planning and monitoring system. 38. Defining requirements of positions. 39. Cultural differences and environmental needs. 40. Publican intervention in organizations (HR polices which employ less Skilled people). 41. Social acceptance of a particular technology. 42. Political and Publican factor. 43. Form desired and suitable for the consulting system.^[12]

III ORGANIZATION SELECTION FACTORS

From literature review different important factors which can be affects to the effectiveness of organization structures are determined.

- a) Size,
- b) Duration,
- c) Resource,
- d) Technology,
- e) Complexity,
- f) Internal interdependency,
- g) External interdependency,
- h) Customer base,
- i) Uncertainty and
- j) Importance.

There are some sub factors under these main factors.

IV. DATA COLLECTION

The data is collected through the questionnaire based on the above mentioned main factors and its sub factors. The data is collected from public small organization are Gram Panchayat, Vinchur and Gram Panchayat, Lasalgaon, Public medium organizations are Zillah Parishad, Nashik and Municipal Corporation Nashik, PWD Branch, Nashik and Public Large organizations are Public Works Department and Water Resources department, Nashik. Also a private organisations are selected to collect data are as Private small organizations are Pankaj Ushir construction and Reliable constructions, Private medium organizations are Rungtha builders & Developers and Hande & Nikam Constructions, Private Large organizations are Linker Shelter Pvt. Ltd. and Shree Ganesh Construction Nashik. The both Private & Public Organizations are classified as:

A) Small Organization, B) Medium Organization, & C) Large Organization.

The Private organization is classified as Small, Medium & Large on the basis of Annual turnover. The Organizations having Annual Turn Over less than 10 cores are classified as small organization. The Organizations having Annual Turnover In between 10 to 50 Crores are classified as Medium Organization. The organizations having Annual Turn Over are greater than 50 Crores are classified as Large Organizations.

V. ANALYSIS OF DATA COLLECTED

The questionnaires are get filled according to the data collected from different organizations in detailed survey carried out during the project work. The SMART technique which means SIMPLE MULTI ATTRIBUTE RATING TECHNIQUE is used to rank each key factor. Then the ranking is converted in to score and from these

score the weightage of the each factor is found out. After finding out weightage of each main factor the important weightage of the each sub factor is found out. With the help of important factor the criticality of each sub factor is found out. The figures are based on the score of factors calculated through data analysed.

A. Size Related Factors:

The effect of Size related factors on different organizations is as shown in a figure-1.

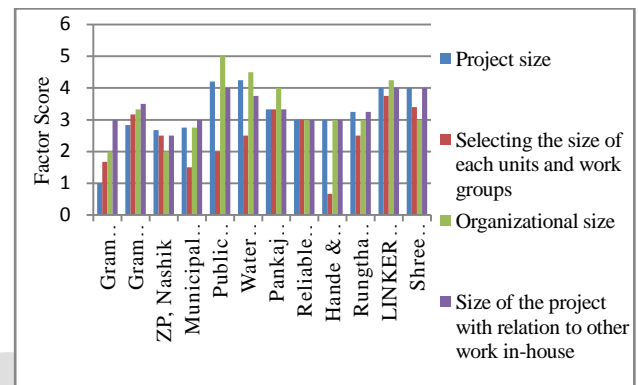


Fig.1: Comparison of selected organization for size related factors

The figure shows that for both public & private medium organizations, selecting the size of each unit & work group has lowest score. Thus it is the critical factor for both Public & Private Medium organizations.

B. Duration Related Factors

The effect of Duration on different organizations is as shown in a figure-2

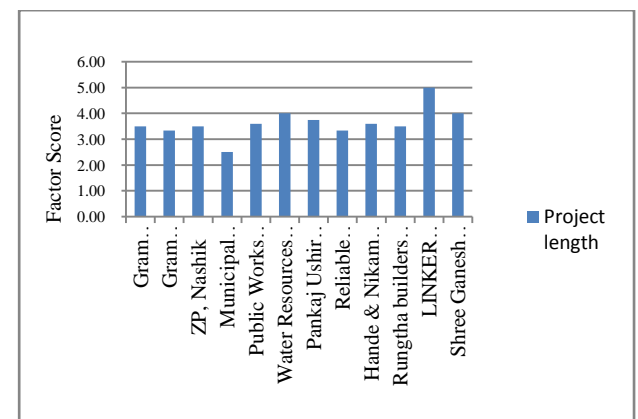


Fig.2: Comparison of selected organization for Duration related factors

The figure shows that for both public medium organization and small private organization Project length has lowest score. Thus it is the critical factor for both Public & Private Medium organizations.

C Resource Related Factors

The effect of Resource related factors on different organizations is as shown in a figure-3

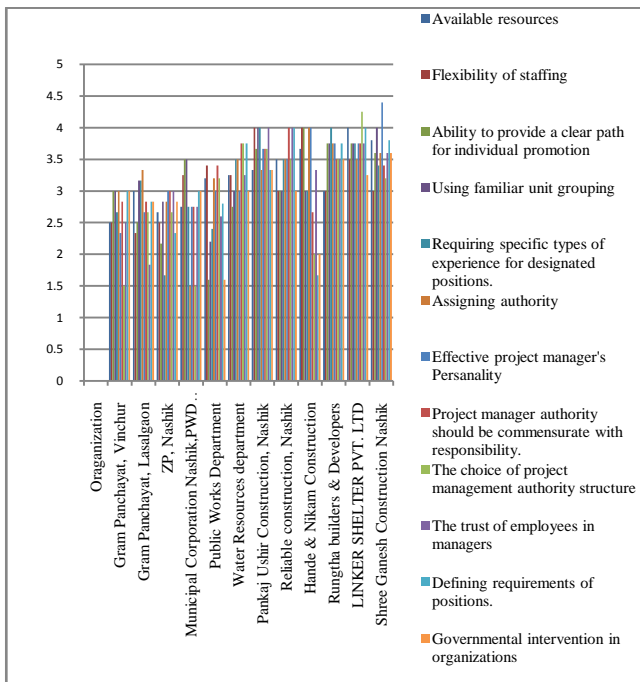


Fig. 3: Comparison of selected organization for Resource related factors.

The figure shows that for public large organization like PWD, the Ability to provide the clear path for individual promotions & Government interventions in organization has lowest score. Thus it is the critical factor for large organizations.

D Technology Related Factors

The effect of Technology related factors on different organizations is as shown in a figure-4.

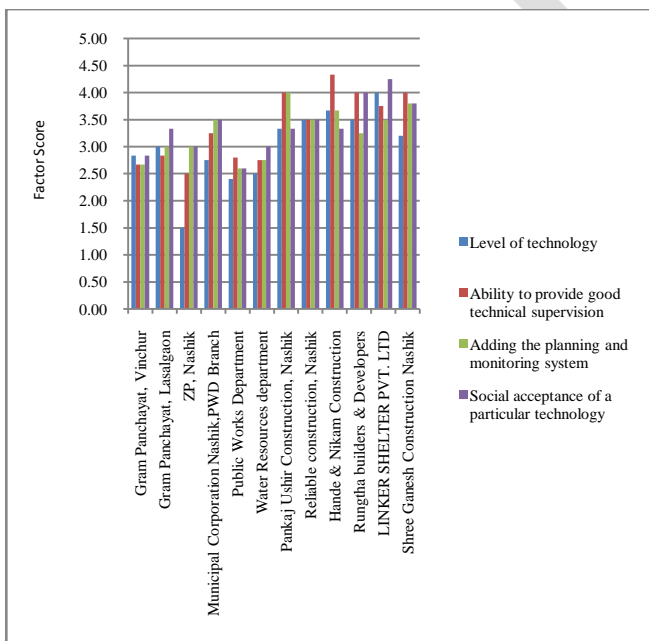


Fig.4: Comparison of selected organization for Technology related factors.

The figure shows that for public medium organization like ZP, the level of Technology has lowest score. Thus it is the critical factor for Medium Public organizations.

E Complexity Related Factors

The effect of complexity related factors on different organizations is as shown in a figure-5.

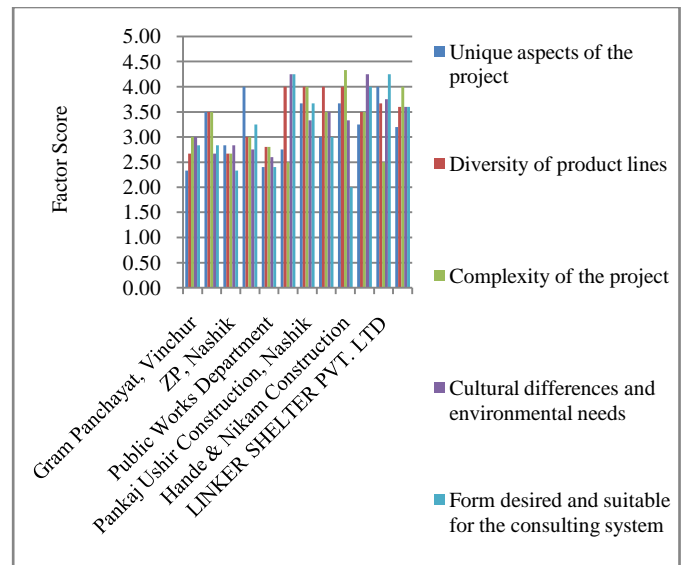


Fig.5: Comparison of selected organization for Complexity related factors.

The figure shows that for public large organization like Water Resource Department & Large Private Organization like Linker Shelter Pvt. Ltd., complexity of project has lowest score. Thus it is the critical factor for Public & Private Large organizations.

F Dependency Related Factors

The effect of dependency related factors on different organizations is as shown in a figure-6.

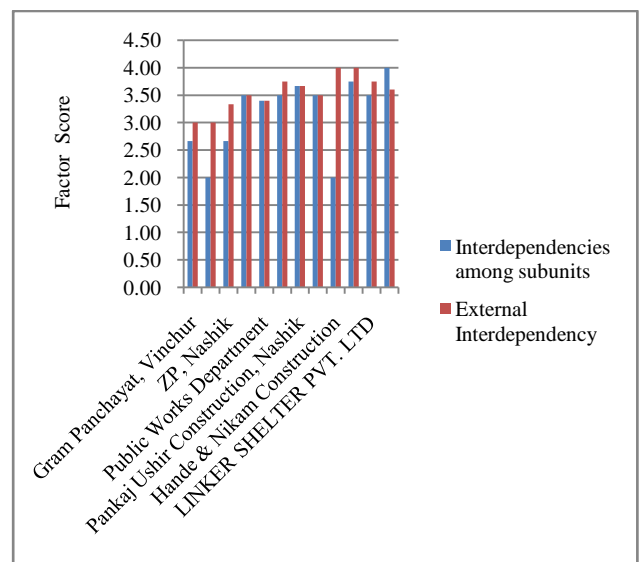


Fig.6: Comparison of selected organization for Dependency related factors.

The figure shows that for public small organization like gram panchayat, & Private medium organization like

Hande & Nikam, Internal dependency among subunits has lowest score. Thus it is critical factor both organizations.

G Customer Based Related Factors

The effect of customer based related factors on different organizations is as shown in a figure-7.

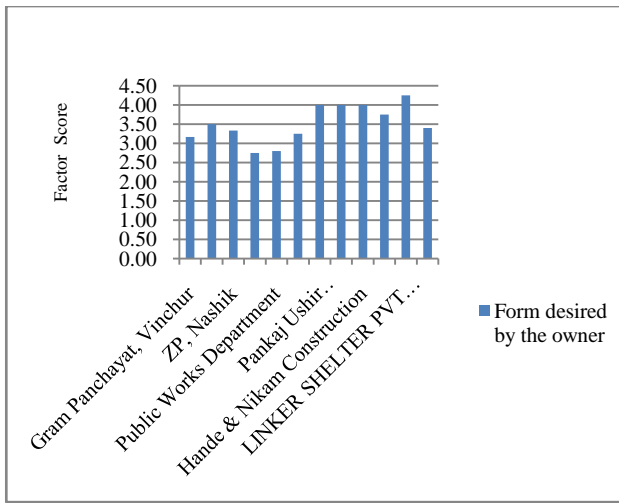


Fig.7: Comparison of selected organization for Customer based related factors.

The figure shows that for public Medium organization like Muncipal Corporation, Form desired by owner has lowest score. Thus it is critical factor for Muncipal Corporation.

H Uncertainty Related Factors

The effect of Uncertainty related factors on different organizations is as shown in a figure 8.

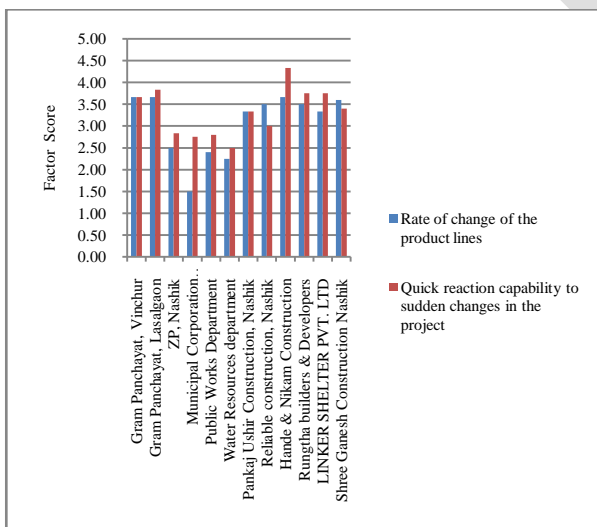


Fig8: Comparison of selected organization for Uncertainty based related factors.

The figure shows that for public Medium organization like Muncipal Corporation, Rate of change of product Line has lowest score. Thus it is critical factor for Muncipal Corporation.

J Importance Related Factors

The effect of Importance related factors on different organizations is as shown in a figure-9.

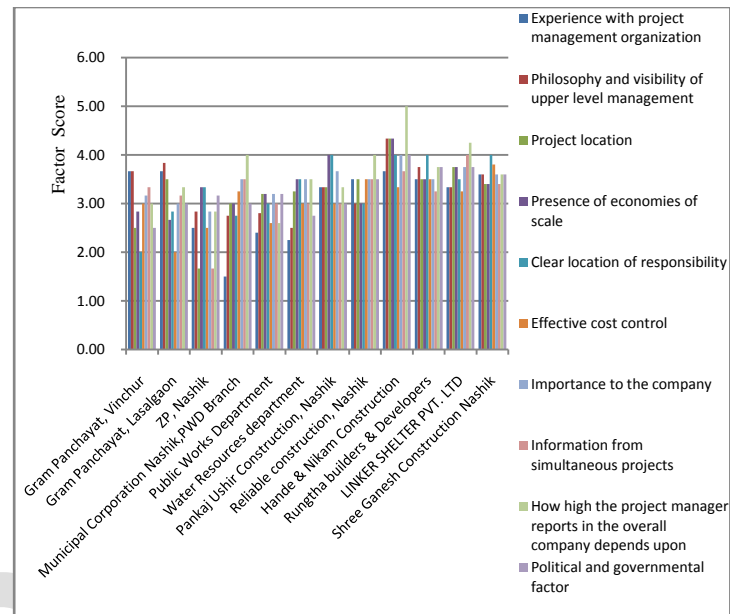


Fig.9: Comparison of selected organization for Importance related factors.

The figure shows that for public Medium organization like Muncipal Corporation, Experience with Project Management Organization has lowest score. Thus it is critical factor for Muncipal Corporation.

VI CONCLUSIONS & DISCUSSIONS

This study indicates the critical factors involved in the optimisation of the organisation structure which contributes in the field of construction industry and will help to improve the performance of the construction organisation in public as well as Private sectors.

1. The factors states in the study can be used as a check list to form an organisation structure for the public and private organisation. The critical factors states in the study for specific organisation can be used as a most important factors by the managerial level person who going to set up an organisation structure for the project.

2. There are some factors which can affect critical to the Public organizations, but don't have a significant impact on Private Organizations. Technology is a factor which is strong in private organization, but it is very critical in case of Public organization. The Public organizations are not leaders in Technology, they react with environment around them, rather than trying to find new ways of efficiency. Whereas for private organization, to attract the customers, It is necessary to innovates the new ideas. This in turn compelled to adopt the new technologies for private organization. The technologies may be regarding Technical Supervisions, Reporting & Communications.

3. In Gram panchayat Vinchur, there is more issues regarding Project size and choice of project management authority structure. Where as in Gram Panchayat Lasalgaon, there is more issue regarding the trust of employees in Manager, as it scores 1.83. The Data collected and analysed, shows that there is more conflict between employees of Gram panchayat Lasalgaon, But, this Organizations seems to be sound to Quick reaction capability to sudden changes in the project.

4. In ZP Nashik, there is more issues regarding requiring specific types of experience for designated positions. As most of the government employees are acquired thru the government exam, which are irrelevant to the experience for that designated position. Though they got a proper training, it is necessary to have the experience for that designated positions.

5. In PWD, Ability to provide a clear path for individual promotion and Governmental intervention in organizations are most critical factors. Both factors are interrelated to each other. As, there is more issues regarding the Governmental intervention in organizations, this may leads to interruptions in providing the clear path for individual promotion. But the organization seems to be strong in internal & external Interdependencies. In Water resource department, all factors of organizations are equally balanced.

6. In Medium Private organization, Runghta Builders & Developers, there is issues regarding Defining requirements of positions. It is a medium organization, Which can be grow to large organization, if the project manager can do the detail analysis of job. It requires to think carefully about all the tasks of project e.g. Book keeping, maintenance of equipment, sales etc. Then think about competencies, attributes & behaviours e.g. imagination, initiative, ability to work under the stress etc. This can help project manager to define the requirement of positions properly. Hande & Nikam Construction is likely the balanced one organization.

7. In big Private organization, Linker shelter Pvt. Ltd has issue regarding Complexity of Projects. Today, one of the difficult issues facing by practitioner in planning is that of continuous increase in complexity of construction projects. There seems to be no available tool & technique for assessing project complexity. The only solution is to focus the issues regarding the complexity. Shree Ganesh Construction is more balanced organization in all aspects.

So, Finally It can be concluded that for better optimization of the organisation various factors are responsible but some factors are critical. In the present study the Technology, Complexity and Importance, these main factors are found to be critical for both public and private organisations.

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