

Benchmarking of Indian Construction Industry

Ishani Sarkar

Assistant Project Manager
Cushman & Wakefield India Private Limited
1st Floor, Brooke House,
9, Shakespeare Sarani, Kolkata

Abstract:

The paper aims to understand the application of scorecard system for the Indian construction industry with a view to develop a benchmarking framework for its inclusive development. The methodology followed for this study involves the study of the different perspectives covered under the scorecard systems. Contractor companies were studied for their rating under the different perspectives of a scorecard. The capabilities of the organizations were studied vis-à-vis the expectations from the evolving industry. During the course of the study via the methodology above, several significant conclusions were revealed regarding the Indian construction industry. Key aspects of a balance scorecard were concluded. Several parameters were identified for evaluating the sector from the perspective of a scorecard. These findings formed the base of the proposed Scorecard for the construction industry aiming for holistic growth. The study has been based on limited number of samples. It may be further improvised by conducting surveys and obtaining field data. The results of the study will assist companies in the construction sector to evaluate themselves in a global framework, fostering inclusive growth and development in the evolving market. The study is an original work examining the benchmarking of the construction industry. It offers to be a beneficial guide to the companies involved in this sector.

Keywords- Construction Company, Benchmark, Scorecard perspectives, Inclusive growth, Sustainable growth parameters

1.0 Introduction

Benchmarking refers to a standard or point of reference against which things may be compared¹. To benchmark companies involved in the Indian construction industry, the primary requirement is for the companies to adopt a uniform system of performance measurement based on the uniqueness of the industry as well as the challenges it faces. This paper is an attempt to propose a model for measurement of performance for the construction industry.

2.0 Balance Scorecard System of Performance Management

The balanced scorecard (BSC) is a strategy performance management tool which can and is being used by organizations across the world to measure performance. It can assist business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals. The BSC encompasses financial

metrics, customer perspective, internal business processes and learning and growth aspects as measures of success of a company.

2.1 Evolution of the Balance Scorecard System

The roots of the BSC concept can be traced to the 1950's when a group of General Electric corporate staff a project to develop performance measures for GE's decentralized business units². The project team recommended that the divisional performance be measured by the 8 metrics of which one was financial and others non-financial. Further, developments in the Western world and Japan brought to light that non-financial measures help organizations have the long term view and contribute to their achievement.

The term BSC was coined in the 1990's. The balanced scorecard has evolved to be a management system (not only a measurement system) that enables organizations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results. When fully deployed, the balanced scorecard transforms strategic planning from an academic exercise into the nerve center of an enterprise.

Kaplan and Norton³ describe the innovation of the balanced scorecard as follows: "The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation."

2.2 The Perspectives of Balance Scorecard

The BSC concept covers four perspectives³:

2.2.1 The Financial Perspective- The aspect of financial performance has been the focus of previously followed methods of Performance measurement. This model does not disregard the traditional need for financial data. As per the BSC, timely and accurate funding data will always be a priority. But while the previous emphasis was only on financials, leading to an "unbalanced" situation with regard to other perspectives.

2.2.2 The Learning & Growth Perspective- This perspective encompasses the employee training and corporate cultural attitudes related to improvement of both individual and corporate. People are the primary resource in the service organizations of the construction industry. In this time and age of rapid technological development, it become a mandate for organizations to train and update their manpower on continual basis. Learning and growth is essential not only for the organization but also for the resource. Kaplan and Norton in their article 'Using the Balanced Scorecard as a Strategic Management system' emphasized that 'learning' is more than 'training'; it also includes things like mentors and tutors within the organization, as well as that ease of communication among workers that allows them to readily get help on a problem when it is needed. It also includes technological tools.

2.2.3 The Business Process Perspective- This perspective refers to internal business processes which allows managers to know how well their business is running, and whether its products and

services conform to customer requirements. These metrics are unique to the company as it is dependent on the product and services that it provides.

2.2.4 The Customer Perspective- This perspective focuses on customer satisfaction which indicates an increasing customer focus and customer satisfaction in any business. This metric also indicates the future trend of the product and services. If customers are happy and satisfied, they would use the same again, else would migrate to competitors. In developing metrics for satisfaction, customers should be analyzed in terms of kinds of customers and the kinds of processes for which we are providing a product or service to those customer groups.

2.3 Implementing the Balance scorecard

The BSC may be implemented through a 9 step framework designed by Howard Rohm of Balance Scorecard Institute⁴. The flowchart elaborates on the framework.



Fig 1. Implementation of the Balance Scorecard

3. The Construction Industry in India

Construction activities contribute more than 10% of India's GDP⁵. The construction sector has two key segments, viz., buildings and infrastructure. The building segment includes residential, commercial, institutional and industrial structures; and infrastructure segment encompasses road, rail, dams, canals, airports, power systems, telecommunication systems, urban infrastructure including water supply, sewerage, and drainage and rural infrastructure. Construction accounts for nearly 60–80 per cent of the project cost of roads and housing. Construction materials such as cement and steel, bricks and tiles, sands and aggregates, fixtures and fittings, paints and chemicals, petrol and other petro-products, timber, minerals, aluminium, glass and plastics account for nearly two-third of the construction costs⁵. Construction work can involve building of new structures as well as include work for renovations involving additions, alterations, or maintenance and repair of buildings or engineering projects such as highways or utility systems. It also includes mega projects, for example, development of ports, industrial corridors, smart cities, river linking projects, city metro rail projects and airport developments/ redevelopments.

In terms of employment, the industry is the second largest employer in the country after agriculture with a strength of around 31000 enterprises. Over 95 per cent of them employ less than 200 persons; over 3 per cent employ between 200 and 500 persons and only a little over 1 per cent have more than 500 employees.³

3.1. Uniqueness of the Construction Industry

Building construction industry has been observed to have intertwined, dynamic, complex characteristics where a paradoxical co-dependency of project and process exists⁶. According to Palmer (2003, 2004)^{7, 8}, construction in general does not behave as an 'industry' but more like a 'conglomerate of industries', an 'industry of industries', a 'meta-industry' that, includes holes, absurdities, inefficiencies, and paradoxes as well as the capacity to invent and innovate. The construction industry is unique in the sense the performance measurement revolves around projects and performance measurement of projects more than the internal processes of the organizations. In addition, all projects are uniquely guided by the context as well as the technical specifications. Safety and quality at a construction site is very demanding due to the dynamic nature of the project. All of the above impact the financial outcome of the project along with the financial implications for each stakeholder organisation.

From the perspective of a scorecard, two projects were studied and the primary organisations connected to them were observed for the ratings to the parameters.

Project 1 has the following project participants: Client-P; Consultant-A; Contractor-X. Project 2 has the following project participants: Client-Q; Consultant-B; Contractor-Y. (The projects are references of two real projects observed by the author, whose names are not disclosed for the purpose of this paper).

Project 1 was moving on schedule while Project 2 was delayed. From the table below it is evident that BSC metrics being followed by one project participant is insufficient for a favorable outcome of the project.

| | A | P | X | B | Q | Y |
|------------------------------|--------------|----------|--------------|--------------|----------|--------------|
| | Consultant 1 | Client 1 | Contractor 1 | Consultant 2 | Client 2 | Contractor 2 |
| <i>Financial</i> | Strong | Strong | Strong | Average | Average | Very strong |
| <i>Customer</i> | Strong | Strong | Strong | Average | Average | Very strong |
| <i>Internal process</i> | Strong | Strong | Strong | Average | Average | Very strong |
| <i>Learning & Growth</i> | Strong | Average | Average | Weak | Average | Very strong |

Range- Weak; Average; Strong; Very Strong

Fig 2. Rating of 2 projects for the BSC perspectives

3.2. Boost for the Construction Industry

Recent initiatives by the Government of India is expected to promote investment in the construction sector. The Make in India program, launched in September 2014, is designed to facilitate investment, foster innovation, enhance skill development, protect intellectual property, and build best-in-class manufacturing infrastructure⁹. It covers 25 sectors of the economy, viz, automobiles, automobile components, aviation, biotechnology, chemicals, construction, defence manufacturing, electrical machinery, electronic systems, food processing, IT and BPM, leather, media and entertainment, mining, oil and gas, pharmaceuticals, ports and shipping, railways, renewable energy, roads and highways, space, textiles and garments, thermal power, tourism and hospitality and wellness.

Under this initiative, in the construction sector, the government has undertaken measures to ease funding. It has permitted 100% FDI through automatic route for townships, housing, built-up infrastructure and construction-development projects (including, but not restricted to housing, commercial premises, hotels, resorts, hospitals, educational institutions, recreational facilities, city and regional level infrastructure). One of the conditions laid down for the foreign investment is that with the exception of smart cities, housing projects and old age homes, 10 hectares is the minimum land area for the development of serviced housing plots. 50,000 sq.mts. is the minimum built-up area for construction-development projects. For combination projects, any one of the prior two conditions would suffice. Regarding Industrial Parks, 100% FDI is allowed under the automatic route. Apart from the construction sector, the initiatives under the other sectors of the economy have an impact the construction industry.

Table 1 Impact of Make in India on the Construction Industry

| | |
|---|--|
| A | Direct impact through Construction sector |
| 1 | Building of residential, retail, commercial and hospitality sectors |
| 2 | Developing of Smart cities and townships |
| 3 | Creating of infrastructure |
| B | Indirect impact through other sectors of the economy |
| 1 | Building of manufacturing facilities and storage houses |
| 2 | Construction of R&D labs |
| C | Quality and Safety |
| 1 | Demand of best-in-class buildings and infrastructure adopting international standards of quality and safety. |

3.3. Challenges faced by Construction Industry

The construction industry is ridden with multiple challenges. There is a lack of structured training and skill building in the industry. The firms of various disciplines are regulated under multiple laws with an absence of unified regulatory framework. Dispute resolution is tedious and inefficient resulting in costly and time-consuming disputes. Increasing government regulations poses a challenge for construction management¹⁰. There is an acute shortage of skilled workers. Institutional finance as well as other facilitating infrastructure like power, roads, is inadequate. Obtaining a balance between preserving the environment and the fragile ecosystem at the same time striving to meet the demands of a developing country like ours is also a significant constraint.

Table 2 Current status of construction industry

| <i>Sl. No</i> | <i>Major challenges faced by the construction industry</i> |
|---------------|---|
| 1 | Lack of structured training and skill building |
| 2 | Tedious and inefficient Regulatory framework |
| 3 | Lengthy dispute resolution |
| 4 | Shortage of skilled workers |
| 5 | Inadequate institutional finance |
| 6 | Shortage of supporting infrastructure like power and roads. |
| 7 | Balance with the fragile ecosystem |

3.4. Scorecard for the Construction Industry

A scorecard for the construction industry needs to be designed to cater to its uniqueness. On examining the parameters of a balanced scorecard, it is concluded that the parameters have correlation to the 'Project' more than the 'Organisation' itself. The table below illustrates the relation exhibited by them. Moving up from the bottom, the parameters inclination shifts from the organisation and moves towards project. The table identifies the context in which parameters may be evaluated for a scorecard for the construction industry.

Table 3 BSC parameters vis-a-vis Indian Construction industry

| <i>Parameter</i> | <i>Indian Construction Industry</i> |
|-------------------|---|
| Financial | Revenue for any construction organization is earned via the projects of the company. |
| Customer | Unlike other industries, in this sector, the customer associates the project with a number of construction organizations- the developer, the designer, the contractor, etc instead of just one company. In other words, one organization may have different customers for its different projects. |
| Internal process | Internal process relates to both the project as well as the company. The processes set by the company would be applied to the project to achieve customer satisfaction and financial success. The processes of one company would merge and co-exist with other companies working on the same project, all aiming for similar goals. |
| Learning & Growth | Skill development is related to both the organisation and the project. The organisation would train their employees in the type of service they perform (generic); the organisation would also need to train their employees on the special requirements of a project that a team is working on (specific). |

4. Conclusion

On the basis of the above study and enlisting of parameters with respect to the context to which they relate in the construction sector, a model is proposed applicable to the industry. The model proposes the balance scorecard metrics and identifies the measures and initiatives required to be taken at an organisation and project level.

| <i>Strategy</i> | <i>Objectives</i> | <i>Measures</i> | <i>Initiatives</i> |
|---|---|--|---|
| Financial <ul style="list-style-type: none"> • Increased productivity • Increased revenue | <ul style="list-style-type: none"> • Obtain efficiency in operational costs of projects • Ensure maximum utilization of resources | <ul style="list-style-type: none"> • Revenue per sqft of project • Cost per sqft of project • Revenue per manpower/ man month provided on project • Cost per manpower/ man month provided on project | <ul style="list-style-type: none"> • Monitoring regularly, monthly |
| Customer Satisfaction <ul style="list-style-type: none"> • Safe structure | <ul style="list-style-type: none"> • Strive for optimization of cost • High quality of | <ul style="list-style-type: none"> • Value Engineering Workshop Results of project | <ul style="list-style-type: none"> • Conduct Value Engineering Workshops |

| | | | |
|--|--|--|--|
| <ul style="list-style-type: none"> • Low cost • World class standard | <ul style="list-style-type: none"> product • Safety in product • Trust in brand name | <ul style="list-style-type: none"> • Inspections and audits results of project • Market survey of project and company | <ul style="list-style-type: none"> • Conduct Inspections and audits • Create market knowledge base |
| <p>Internal Process</p> <ul style="list-style-type: none"> • Improve Quality • Improve Safety • Improve Efficiency of Product | <ul style="list-style-type: none"> • Enhanced safety and quality in all processes • Improve efficiency | <ul style="list-style-type: none"> • Checklist for safety & quality in design stage, procurement stage, execution stage and closure of company on project | <ul style="list-style-type: none"> • Workshops to brainstorm ideas and review design, procurement and execution |
| <p>Learning & Growth</p> <ul style="list-style-type: none"> • Improve trainings • Encourage Innovation | <ul style="list-style-type: none"> • Improve learning of employee • Improve innovation culture | <ul style="list-style-type: none"> • R&D Development (generic and specific) • No. of innovative ideas on project | <ul style="list-style-type: none"> • Training and skill build up • Collaboration over innovation |

Fig. 3 Proposed model of Balance Scorecard for construction industry

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