

Implementing Balance Scorecard in Small Size Construction Firm: Case Study

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Abstract: At the time of working on any project, it is essential to have impact assessment, reviewing and aligning the actions towards the predefined target and lining up outcome towards long term goal of the organization. Study aims to assess the possibility of the change and impact by BSC tool on the project. Case study approach has been carried out to assess the effectiveness of BSC tool in the small construction firms working in rural and semi-urban areas. Effect assessment is carried on for commercial as well as residential project. Application of BSC tool shows the positive impact on the performance, activeness, team building as a family. Study shows the benefits in term of cost reduction, timely management, turnover ratio, quality check, goal-oriented work from the BSC tool implementation.

IndexTerms - BSC Tool, Small Size, Indicator, Construction Firm.

I. INTRODUCTION

Today's organization has to evolve and inculcate new strategies and innovative operating process that measures financial parameters as well as other parameters which are impacting the business such as customer satisfaction. Measurement has the essential part to the long term and short term strategy of the business and impact they have on performance. If the organization only measures its growth on the financial perspective, on a long term effect organizational policies would only revolve around profit maximization overlooking the customer satisfaction, employee growth which in turn would lead the growth line of financial perspective in negative slop. Hence the measurement tools inculcated within the organization should be such that it identifies its core areas along with the financial perspective and regularly evaluate growth on all the parameters indicated on its measurement tool. For such measurement tool which easily blends with the management and operational strategy, Balance score card is used. Construction industry is highly identified as unorganized management industry where majorly long term growth perspective and sustainable and stabilized growth is overseen. The research aims to implement the balance score card into construction industry for the developer and builder and evaluate the organization performance before and after the implementation of the balance score card tools. Balance score cards generally focuses on the four perspectives which include financial perspective, customer perspective, internal process perspective, and innovation & learning perspective. BSC tool of measurement emphasize on achieving particular goals and mission of any organization and it will also assist in strategic planning and connecting goals and mission of the organization within the BSC's four parameter.

1.1. PROBLEM STATEMENT:

Strategic management system is must for the effective completion, utilization and aligning the available resources towards the term planning. Also there is need to have performance measurement for the financial and non – financial activities carried on by the organization.

1.2. PROBLEM OBJECTIVE:

- To understand implementation of BSC tool in the firm and results.
- To study the impact of the BSC tool in effectiveness of the business and its overall impact on organisation.
- To analyze the parameter and define basic indicators.

II. LITERATURE REVIEW

According to Dragan Katic, Ladislav Bevanda (2019) [1] possibility and effectiveness of the usage of a balance scorecard for the development tasks. The entire company BSC evaluate in addition to nuclear assessment and control effectiveness the use of BSC tool is the excellent viable approach to be rendered for the motive force's performance indicators of construction projects. The main motive force in the back of one's philosophies is the optimization of a corporation's overall performance each internally and externally inside its respective marketplace region. unavoidably, this has caused the rethinking of overall performance management structures via a powerful overall performance dimension. The BSC effects in assisting agencies work via a powerful dimension of organizational overall performance, growth intangible property and implementation techniques via economic and non-economic measures.

Rana A. Maya (2016) [2], said that in Syrian construction they still not use performance measure and management tool for projects. The intention of this paper is to have a look at the software of balanced, incorporated, and current performance management system so as to undertake it as a tool to measure and manage Syrian construction projects performance. author use balance score card framework as a performance management system and they use 8 key performance indicators for different perspective. on this studies BSC designer (performance management software) became used to guide software the all related problems regarding performance management stages and balanced scorecard elements. The proposed BSC performance framework effectively proven the basic performance which turned into marginal and ranged between (24.42-35.05) %, and development closer to goals which turned into restricted; except projects strengths and weaknesses. In conclusion, the software of the proposed framework has proved that it forms an included and balanced system for measuring and handling overall performance in term of its capacity to deal with all performance management levels and BSC factors. This studies locating may be very crucial for performance control practitioners due to the fact the proposed technique forms an experimented framework which allows them with easy, balanced, and a success implementation of overall performance management for construction initiatives performance development.

Anindhyaguna Adhiprasangga, Anindya Prawita Sari, et al. (2016) [3] said about to develop a balanced scorecard from key performance indicators in construction companies. They use the balance scorecard(BSC) tool for strategic planning for companies. strategic measurement system divided into four different perspectives a financial, customer, internal processes, and learning & growth. And this all four parameter has different KPI as per the mission of the company. This paper analyzes the KPI of one construction company which is located in Indonesia. Firstly, they analyse the vision and mission of the company and then after they correlate with each perspective which is finance, customers, internal process, learning & growth and set the key performance indicators for each perspective to achieve sustainable growth of the company. For future scope, the author suggests other tools like six sigma and Malcolm Baldrige.

Irja Hyvaria (2014) [4], the paper took in its angle to measure the powerful organization method implementation and has addressed the growing significance of challenge portfolio control. balanced scorecard talks approximately such as four views for translating a method into action. Portfolio management is the coordinated control of one or extra portfolios to obtain organizational techniques and targets. The literature overview indicated the distance in expertise concerning the project portfolio control effectiveness and the organization approach implementation in unique business companies. This paper goals to in part satisfy this gap through offering outcomes from a case observation made on business corporations.

Milind T. Phadtare (2010) [5], has reviewed the comprehensive view on all the four aspects of their Balance Scorecard tool namely, customer, internal process, innovation and learning, and financial. Although the BSC tool is widely accepted and implemented by a large number of firms globally, the review of the small companies adopting the BSC tool was minimum. Hence the author attempts to apply the concept of BSC to three small-sized construction firms in India. All three firms could successfully implement the BSC. There was a firm commitment from the top. The top team got intensely involved in determining and monitoring of key indicators. Day-to-day supervision by the top management and regular meetings helped to track performance and also take corrective actions wherever unfavorable deviations were found.

Robert S. Kaplan (2009) and David Norton [6] has delivered the balanced scorecard in 1992, this text is based totally on multi-business enterprise and this businesses studies assignment studied overall performance size in the ones organizations wherein intangible property performed a significant and sustainable function in price creation of the organization. In this paper they describe the broadened for management tool, communications, and how implement strategy. And for this Kaplan has developed balance scorecard in four structure one is BSC for performance management, second is Strategic objective & strategy maps, third is The strategy management system, fourth is Future opportunities.

Stuart Tennant and David Langford (2008) [7] said that from the pre era of revolution in the industry or emerging of various organized sector development, the construction sector has always been the parameter to study the health of the country as a whole which cannot be neglected upon. Traditionally the success was cited upon cost, time and specification. in this research, authors use two different performance management software one is EFQM Business Excellence Model and the second is Kaplan & Norton's Balanced Scorecard which assessed for their appropriateness within the field of construction management. As a result, of the case study, the balanced scorecard method shows better mapping to the key performance indicators and construction excellence in the built environment KPI assessment. Case study refers to the past to be accused of being wasteful, inefficient and ineffective where the modern way approach as an application of a Balanced Scorecard to construction project aligned with the established practice of performance goal-setting may also facilitate the introduction of project team-based reward initiatives.

A. Bassioni, T. M. Hassan (2004) [8] had discussed the performance measurement in U.K. based construction companies and analyse gaps in knowledge and practice which suggest future research. They use a performance measurement framework including a balanced scorecard and European Foundation for Quality Management Excellence Model. This paper focuses on performance measurement for internal management of the firm and not for evaluation by clients or shareholders. The paper is divided into two main sections: advancements in performance measurement, and performance measurement in U.K. construction. For the balanced scorecard, they used key performance indicators for each perspective. The authors also describe the gaps in knowledge and practice for advancements in performance measurement.

III. HYPOTHESIS FORMULATION

It was often viewed that small firms face problem in implementing proper and effective management system that links and reports top level management according to the targets and the goals set there forth. Due to lack of reporting structure, motivation, clear mind-set, transparency of work from top to bottom level, analyzing the data and comparative study towards the deviation into goal and strategy, correct and important decisions are affected. BSC tool implementation has the advantages which try to curb all the problems stated above. Small firm often hesitate in implementation of such tool and cost involve with the same. Study shows the effects of the BSC tool and the impact on the firm as overall development towards all the parameters.

IV. RESEARCH METHODOLOGY

A case study approach was used for studying the BSC tool. Research and analysis is based on the primary data collected by working with the firm, interaction with the management and employees of the firm as well as secondary data available on the recognized website. Literature review and findings in earlier research were also considered in analyzing the tool. Project were located at different geographical location. Management was friendly in implementation of BSC tool. End result may not be ascertained at the current point as construction project is yet not completed but the process, effects and organization as a whole has seen the positive changes so far in terms of reducing cost, increasing revenues and management process. Based on the findings and effect of the implementation of BSC TOOL in the project, all the four parameters are assessed, analyzed, reviewed and noted.

V. BALANCE SCORE CARD METHOD

Historically, many system for management has been developed which is generally linked with measuring the output and tool to measure it. Balance score card links the vision and mission goals into strategy planning and go beyond financial metrics in ascertaining organizational success.

Success of balance score card method depends upon critical test of its transparency and selection of the indicators as well as parameters that are closely linked with day to day activities, strategic plan and long term vision.

Organizational strategy is transferred into mix of four parameters which considers following:

- Internal and external measures.
- Objective and subjective measures.
- Performance results and drivers of future results.

Generally equilibrium of four main perspective are considered while ascertaining the parameters of balance score card method. However, mix of the parameters is to be determined by the organisation according to its long term plan.

1. Learning and Growth Perspective - learning and growth perspective looks at the all-around corporate culture in the organisation. It includes measures which sees to the employee retention, employee satisfaction, skills, technological updation.
2. Internal Process Perspective - this perspective looks upon the efficiency and effectiveness of the organizational structure. It looks upon how proactive and change adoptive organization is as well as how the organization manages itself with the cost, new ideas and execution.
3. Customer Perspective - it is generally said that how you treat your customers today shows how much profits you would make tomorrow. This perspective looks after organisation market share, customer retention, happy clientele, how many new customers you are able to attract and whats the customer retention ratio.
4. Financial Perspective - financial perspective always hold the important meaning to any activity. Return on investment, growth, economic value addition, etc. are looked upon to determine the wealthiness and prosperity of the organisation. Money keeps the organisation alive and all the perspective ends on the ultimate gain or earning in financial and non-financial way.

Modern balance score card shows the interrelation of each perspective to other and thus the strategic indicators are important. Cause and effect of each indicators has to be ascertained and indicators to each perspective is to be selected.

Choosing the correct indicator is more of the art than science. It is very essential to choose the indicators that are linked with the vision and mission as well as short and long term planning of the organisation. This is the task that cannot be totally outsourced. Effectiveness of the BSC tool depends upon the appropriateness of the indicators.

However, all the strategic mapping towards the goal of the organisation can be summarized or gauged by following guideline. Exhaustive guidelines are not possible for the BSC tool but the indicators can be inclusive of such guidelines.

- a) Indicators speaks more about the action. Improving, reducing, effectiveness, maximizing, optimizing, etc. are the basic words which helps in determining the indicator
- b) Those things that are useful but which are out of control of the organisational preview and cannot be achieved should not be used as the indicator in the BSC tool
- c) Indicators should be indicate constant improvement or the process. It should not be one-time event that organisation has to take care of.

- d) Indicators which are too difficult to measure or quantify should not be used as the indicator. However, alternate to such measures that can be reasonably measured and links to the same non measurable indicator should be used. Example: - if the brand survey is too far-fetched for the organisation, vague indicator such as improve brand recognition should be avoided however it should be more classified into measurable quantity such as effect of the organization, etc.

VI. DATA COLLECTION AND ASCERTAING THE INDICATORS

Data collection is robust process as data has to be collected with authenticity and then converted into information which is useful in decision making. According to the process of balance score card, selecting the data is process of aligning indicators and target for the parameters of balance score card method.

As per Norton and Kaplan, process of selecting the indicators is laid out. Adopting the base from their research and linking to the structure of the organization, robust process of setting out the indicator was decided. With the structure, size, mind-set, target to be achieved from balance scorecard – it is empirical to change the method of arriving at any given decision and process. Adopting the best suitable process to small sized organization following steps were carried out:

Idea: balance scorecard starts with the idea of aligning the targets with mission and vision. Readiness of the organization to implement BSC tool is strengthened and sources are identified for the smooth implementation of the BSC tool. External agencies if needed are appointed.

One to one discussion with top management: person who are assigned with the role of implementing the BSC tool further discusses about the strategy goals, vision and mission statement with the top management. He tries to ascertain the end result of the BSC for the short term as well as long term.

Ascertaining vision and mission statement: facilitator communicates with the different stakeholders, senior management and jointly comes to the consensus of vision and mission statement. The process is carried out with the video calls, overall survey of the company personnel by talking and questioning them.

One to one discussion with senior executives and managerial person: facilitator reviews, analyse the inputs from the top management, senior executives and interviews further for forming the tentative balance score card.

Identifying indicator for each parameter: senior management, representatives, top level management debates at stretch on the tentative balance score card. They discuss, analyse and put forth the detailed view on each of the parameter and identify the indicator for such parameters with the consensus of all.

Sets out target for each indicator: after finalizing the indicator, facilitator sets out target for each indicator on the basis of one to one conversation and representation from each departmental heads. The targets are the later on reviewed by the top management to ensure the linkage between targets and vision and mission statement. Weightage to each indicator is also decided.

Implementation: a team is formed for the Implementation of the BSC tool and to link the targets with the IT systems and review systems already in place with the organization. All the personnel are communicated about their role as well as goals each needs to achieve which creates the feeling of team work.

Periodic review: a system is set for the quarterly or monthly review of the progress and variance from the actual performance to be set out. Changes are done, if needed. Targets are redesigned according to the changing situation. Continuous review for the vision and mission achievement is targeted. Responsibilities are delegated to the team or review panel for the constant review which in turns report to the top management at the regular interval of time.

VII. TABLED VIEW OF THE BSC

Table 1 Performance of residential project

| FOR RESIDENCIAL PROJECT | | | | | |
|---|-----|--|---------------|---------------|-------|
| Perspective | No. | Key Performance Indicators | weight | Performance % | |
| Learning and Growth Perspective (Employee) | | | W lg = | 25% | |
| | 1 | Employee productivity | 35% | P lg-1 | 80.4 |
| | 2 | Employee satisfaction | 35% | P lg-2 | 75.8 |
| | 3 | Corporate culture of innovation & Learning | 30% | P lg-3 | 82.5 |
| Performance of Learning & Growth Perspective | | | P lg = | 79.42 | |
| Internal Process Perspective | | | W ip = | 25% | |
| | 1 | Improving quality of product/ services | 50% | P ip-1 | 77.25 |
| | 2 | Emphasizing on long term relationships | 50% | P ip-2 | 80.83 |
| Performance of Internal Process Perspective | | | P ip = | 79.04 | |
| Customer Perspective | | | Wc = | 25% | |
| | 1 | Observation & experience at ongoing site work | 45% | Pc-1 | 77.33 |
| | 2 | Increase customer confidence in our service and Satisfaction | 55% | Pc-2 | 75.90 |
| Performance of Customer Perspective | | | Pc = | 76.55 | |
| Financial Perspective | | | Wf = | 25% | |
| | 1 | Profitability | 55% | Pf-1 | 78 |
| | 2 | Cost of construction | 45% | Pf-2 | 79.5 |
| Performance of Financial Perspective | | | Pf = | 78.68 | |
| Performance of residential project (%) P = | | | | 78.42 | |

Table 2 Performance of commercial project

| FOR COMMERCIAL PROJECT | | | | | |
|---|-----|--|---------------|---------------|-------|
| Perspective | No. | Key Performance Indicators | weight | Performance % | |
| Learning and Growth Perspective (Employee) | | | W lg = | 25% | |
| | 1 | Employee productivity | 35% | P lg-1 | 80.4 |
| | 2 | Employee satisfaction | 35% | P lg-2 | 74.8 |
| | 3 | Corporate culture of innovation & Learning | 30% | P lg-3 | 84 |
| Performance of Learning & Growth Perspective | | | P lg = | 79.52 | |
| Internal Process Perspective | | | W ip = | 25% | |
| | 1 | Improving quality of product/ services | 50% | P ip-1 | 78.25 |
| | 2 | Emphasizing on long term relationships | 50% | P ip-2 | 80.00 |
| Performance of Internal Process Perspective | | | P ip = | 79.13 | |
| Customer Perspective | | | Wc = | 25% | |
| | 1 | Observation & experience at ongoing site work | 45% | Pc-1 | 77 |
| | 2 | Increase customer confidence in our service and Satisfaction | 55% | Pc-2 | 75.86 |
| Performance of Customer Perspective | | | Pc = | 76.37 | |
| Financial Perspective | | | Wf = | 25% | |
| | 1 | Profitability | 55% | Pf-1 | 80.5 |
| | 2 | Cost of construction | 45% | Pf-2 | 79.5 |
| Performance of Financial Perspective | | | Pf = | 80.05 | |
| Performance of Commercial project (%) P = | | | | 78.77 | |

As per the table, indicators were arrived at to which target is set and performance is measured by following questionnaire method. By deciding base for the assessment, timely assessment, periodic review and controlling procedure for any deviation is carried on

VIII. DATA DISCUSSION

Different indicators were selected to assess the overall growth of the company and to where the organisation has to be held i.e. vision and mission statement. With such objective performance measurement was attached to each indicator. Targets were set to the specific performance measurement which defers for individual to individual in the organisation. Overall performance assessment is made by the questionnaire system. Weightage is given to the indicator as decided by the organisation at the time of deciding the indicator. With such weightage system, importance to the different indicators can be varied. In the traditional method of assessment, only objective (quantitative) measures are analysed and interpreted with the main focus on profit of the organisation. many subjective (qualitative) measures were just theoretically discussed without actually measuring the same. BSC tool helps in ascertaining subjective as well as objective indicators and also helps to periodically review the same.

Result interpretation is critical for any project management and aligning with the project success. Outcome of the data with indicator analysis has lead us to interpret the stakeholder interest as well as holistic development of the organization.

Data interpretation can have three type of analysis along with the basic performance analysis.

- A. Project assessment
- B. KPI assessment
- C. Performance assessment

A). PROJECT ASSESSMENT:

Project assessment is derived by comparing two or more project/site carried on by the organisation. Different perspective analysis among sites/projects can be done along with the overall performance of the project.

our case study shows that performance of residential project is 78.42% where as that of the commercial project is 78.77% which can be considered as equal performance of both the site. This can mean both the project are lagging in similar objective as well as scoring in similar kind of objective.

However, detail study of the perspective analysis shows that

- I. Financial perspective: - With the same performance of 79.5% for both the projects profitability of both the sites differ. commercial project yield performance of 80.5% whereas residential project shows 78% of the profitability towards the similar cost of construction. Such type of data analysis can be used for new project/site at the same location to yield maximum results.
- II. Customer perspective: - Indicator selected by the organisation to customer perspective yield almost equal type of performance. one can interpret to have similar or same approach towards all the customers in the organisation. It can be useful to have a specific Brand-Name to the organisation for same quality performance across the site. However, organisation as a whole can redefine their strategy to increase customer satisfaction from 76% to higher percentage ratio.
- III. Internal process perspective: - Internal process perspective shows near to 1% of difference among both the sites. Internal process has a co-relation to the same manager who are working in both the sites.
- IV. Learning and growth perspective: - Learning and growth perspective shows that policy and working condition adopted for the employee among the organisation has yield near about of 79% of performance . steps can be taken to increase the productivity and effectiveness. performance target is to be reviewed for the higher percentage performance and overall satisfaction.

B). KPI ASSESSMENT:

KPI assessment is meant to assess the key indicators performance of the project. weak key indicator shows higher improvement scope. KPI assessment analyzes the strength and weakness of the organisation. Employee satisfaction indicator shows low level of employee satisfaction against employee productivity or corporate culture indicator. Increase in the satisfaction may increase other two indicator results whereas quality of product and services shows 77% of performance which means quality can be improved which in turn is connected to employee satisfaction. Productivity of the employee is not yielding finer goods/services due to low satisfaction ratio.

Such approach can lead us to understand organisation lagging points for further improvement and quick decision making.

C). PERFORMANCE ASSESSMENT:

Performance of each employee can be calculated on a subjective & objective basis. Various indicators, organization profitability can be reviewed and analyzed. performance assessment can be done at micro level as well as macro level by BSC tool. Each item can be assessed and reviewed. customer satisfaction & requirement of each customer can also be assessed, noted and action can be taken their wise. one to one customised as well as non-customised approach towards each and every happening of the organisation can create live approach in the organization.

BSC tool is the tool for constant evaluation which leads to quick decision and problem solving approach.

IX. KEY FINDING

- With the help of BSC tool implementation in the small sized construction organisation, firm are able to recognise their strength and weakness effectively and work upon it in a simple effective manner.
- Manager, employee and top management is integrated and is consensus about the goal of organisation.
- It helps in quick decision making and problem solving approach.
- It helps the individual to assess his individual performance at different levels.
- Different department can be integrated and combined for the organisational benefits.
- Feedback method helps in improving the way of organizational working.
- It helps to build the reputation of the organisation in the systematic manner.
- Target oriented work can be achieved.
- It helps in establishing organised management system even in the small firms.

With all the advantages of BSC tool, it also has to look for the disadvantages which are as follow

- BSC tool is the game of proper selection of indicators & measures.
- Ability to connect the measuring values for strategic and subjective actions.
- BSC tool does not calculate the impact of regulator, government, pressure parties, suppliers, etc.
- Natural phenomena impact is not calculated and there is no indicator for performance measurement of strikes, lock-out, etc.
- However, with the constant integration, findings, daily reporting and communication flowing from top management to the bottom management, chance for strikes, lock-outs etc. are reduced as they can easily communicate their voice to each and every one in organisation.

X. CONCLUSION

BSC tool is effective towards co-ordination, management and target oriented work for small sized construction firm. Analysis, interpretation and communication in organization can be done on day-to-day basis by using BSC tool. It also helps in identifying strengths & weaknesses of the company. Traditional method of evaluation can conduct only profit analysis whereas BSC tool show holistic analysis for the organization with certain limitations. Ethical enhancement and growth story of the small size firm can have remarkable positive change with BSC implementation. Effectivity of selected indicator is however crucial for the successful implementation of BSC tool.

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