The Impact of Building Information Management (BIM) on the Profitability of Construction Projects

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Abstract

In order to price construction in a way that ensures the highest degree of performance and prevents loss, this research based on businesses' accounting will utilize Building Information Management (BIM) to deal with engineer projects. The current study focus on establish a distinctive record for quantity pricing in engineering projects applied in Iraqi construction enterprises. For the sake of cost, it has been linked to the engineering contract construction licenses. Then, by balanced scorecard of each contract item, it was connected and priced using BIM. How to analyze the rotation of engineering projects placed out to bid using a balanced scorecard. Experience in pricing is necessary to apply the balanced scorecard idea to prices. This way of fusing technical and administrative labor must be understood and studied by engineers as well. This strategy supports the balanced scorecard approach to bid pricing in strategic management accounting. How is it possible for the balanced scorecard to make the four prices follow its guidelines, provide the predicted projected profit for this bid and for each component, and ensure that the outcomes follow a preset and authorized strategy in engineering pricing?

Keywords: BIM, performance, SWAT analysis, balanced scorecard, management, construction companies

1. Introduction

The Balanced scorecard approach, first introduced by Tuan (2020) is regarded by academics as a building information management tool for creating a performance management system (Alabdullah, 2016; 2018; Alabdullah, 2016; Alabdullah et al, 2020; Alabdullah et al., 2022; Alabdullah et al., 2017; Alabdullah et al., 2022; Abushammala, et al., 2015; Alabdullah et al., 2015; Alabdullah, 2014; Alabdullah et al., 2018). It has been widely implemented by many businesses. Continuing the first strategy that sought to identify particular actions from a wider viewpoint (Hasan, Zgair et al. 2015, Renzulli 2021). A huge of studies has focused on the link between firm performance and internal control mechanisms in order to take performance and its enhancement in their consideration (e.g., Alabdullah, 2022; Amashhadani and Amashhadani, 2022; Alfadhel et al., 2013; Alabdullah, 2020; Ahmed et al., 2020; Almashhadani, 2020; Al-Fakhri and Alabdullah, 2021; Kanan 2012; Nor et al., 2020; Alabdullah, 2019; Kanan et al., 2022; Almashhadani, 2021; Alabdullah et al., 2020; 2019 Kanan et al., 2015; Amashhadani and Amashhadani, 2020; Ahmed et al., 2020; Alabdullah et
al., 2018; Kanan et al., 2014; Ahmed et al., 2015; Almashhadani, 2021; Alfadhel et al., 2016;). Further recommended developing a strategy map that highlighted the connections between these four views. The Balanced scorecard method has changed from being a measuring system to a communication system that offers a one-page graphical picture of what an organization needs accomplish well in each of the four viewpoints to successfully execute a plan (Hussein, Kasim et al. 2015, Renzulli 2021).

The balanced scorecard and SWOT analysis of the Iraq Contracting Company in Iraq are included in this study. An investment holding company located in Iraq that specializes in civil engineering construction, Iraq has three business divisions: engineering, construction, club administration, concessions for water and expressways, and real estate development. The company offers cutting-edge, top-notch infrastructure and dwellings through its principal operations in infrastructure development and construction, management and maintenance of public infrastructure concessions, and large-scale urban property development. We want to lead the area in inventive breakthrough solutions for large-scale public infrastructure and property development, according to the company's vision statement. The mission statement states, "We dependable produce innovative world-class infrastructure and top lifestyle properties for our clients via our primary operations in infrastructure development and construction, operation of infrastructure facilities, and property development." The processes for any engineering project should be considered. Each step of the project requires the use of trained engineers, technicians, and workers. Each of these must be considered while developing an accounting program for the project, whether it be for cost or accounting. Figure 1 displays the steps for each engineering project.

![Fig. 1: Phases of construction projects](image-url)
2. Materials and Methods

The balanced scorecard's strengths, weaknesses, opportunities, and threats are depicted in the Fig. 2 plan. These methods will be linked to the approval strategy for the Iraqi contracting company in terms of financial and customer wages as well as the internal financial and administrative affairs of the company and how to develop (AL-HASHIMY 2017, Trautman, and Butler et al. 2022).

Construction engineering firms, like other businesses, struggle to properly manage projects and identify their staff's strengths, weaknesses, opportunities, and mistakes. Instead, they draw on their experiences in accounting and administration or work to improve these areas of their business in order to manage projects more profitably (Al-Hashimy and Yusof 2021, Bryson, Crosby et al. 2022) (Fig. 3).

3. Analysis/SWOT analysis

1. Strengths: The Company’s proclaimed desire to negotiate with foreign governments on its behalf and willingness to do so is its key strength. The company's financial health is another asset. Even if large rivals or other regional airlines have reported losses, the firm still generates income (AL-Hashimy 2018, O’Connell, Avellana et al. 2020). Additionally, the business is run by a leadership team with expertise in business management who have managed to make it one of the most prosperous companies across the globe. Along with management, the workforce is educated, trained, and prepared to work for the organization, which can enhance customer service. The business has effective marketing skills that enable it to communicate with customers all around the world. Last but not least, the business has a positive image in the aviation sector and has been hailed as a pioneer in innovation, using the newest airlines (HUSSAIN 2017, Woo, Park et al. 2021). With an average age of six years, the company’s fleet is another asset that helps it build its reputation and save maintenance expenses (Arumugam, Hussein et al. 2015, Cartenì, Henke et al. 2020).
2. **Weaknesses:** The firm has certain shortcomings. Weaknesses are mostly connected to the strategic decision-making process, where the firm did not have the necessary competence at the outset of its existence, and other bonuses were signed based on many of the ambiguities in the accounting. (AL-Hashimy 2019, Al-HASHIMY and Al-hashimy 2019, Niemelä, Kärkkäinen et al. 2020). Other weaknesses are strategic alliances and acquisitions (Bamel, Pereira et al. 2021).

3. **Opportunities:** The business has several possibilities to seize. Competitors in challenging conditions could give the firm the opportunity to increase its share in the tenders. Most Iraqi competitors lack both experience and strong academic credentials. The Internet and information technology advancements provide additional prospects. The business might take advantage of this chance to solidify its position and forge competitive advantages (Hagiu and Wright 2020).

4. **Threats:** Threats to refer bids to the corporation are common, and Iraq recently saw a terrorist assault that was directed towards the country’s north Hagiu and Wright (2020), resulting in most of the state funds spent on this attack in addition to that the company faces some corrupt almiqui who pay money for the purpose of taking tenders legal (Al-HASHIMY and Al-hashimy 2019). A summary of the SWOT analysis is presented in Table:

1. **Strengths:**
   a) Large capital
   b) Final accounts are accurate
   c) Youth managers
   d) Well-trained staff 5-strong marketing
   e) Reputation

2. **Weaknesses:**
   a) Delayed salaries of employees
   b) Taking projects greater than the company’s strategic capacity
3. Opportunity:

a) Taking projects simply because of the partner’s experience
b) Advanced pricing methods

4. Threats:

a) Adopting illegal methods from some companies to take projects
b) Low state revenues
c) Terrorist attacks

4. Results and Discussion

For the balanced scorecard, Table 1 shows the perspectives and the recommended strategies for the companies. We can clearly see from the findings that engineers in the construction industry require administrative and accounting abilities in order to accurately price projects. We can also see that contracting organisations can measure their profits and losses by managing a strong accounting approach. Be aware that the balanced scorecard plays an important and delicate role in project pricing. Making simple and reliable controls for the procedure should be done in order to implement and improve this approach.

Table 1: The perspectives and the recommended strategies for the companies

<table>
<thead>
<tr>
<th>Variables</th>
<th>Objectives</th>
<th>Measures</th>
<th>Targets</th>
<th>Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Increase revenue</td>
<td>ROI</td>
<td>8.5%</td>
<td>Try taking different projects</td>
</tr>
<tr>
<td></td>
<td>Increase liquidity</td>
<td>Money Service index</td>
<td>14%</td>
<td>Increase revenues by opening capital support projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9-10</td>
<td>Try to identify problems with the processors and resolved through dialogue</td>
</tr>
<tr>
<td>Customers</td>
<td>Improve customer service</td>
<td>Customer satisfaction index</td>
<td>8-9</td>
<td>Find out what attracts people to give their projects to the company</td>
</tr>
<tr>
<td></td>
<td>Improve customer satisfaction</td>
<td></td>
<td></td>
<td>and what are their demands</td>
</tr>
<tr>
<td>Internal</td>
<td>products and services conform to customer requirements</td>
<td>Satisfaction index</td>
<td>7-9</td>
<td>Conduct a survey to find customer satisfaction and business</td>
</tr>
<tr>
<td>process</td>
<td></td>
<td></td>
<td></td>
<td>the fulfillment of the task of the company</td>
</tr>
<tr>
<td>Learning and growth</td>
<td>Improve employee training and development</td>
<td>Employee satisfaction index</td>
<td>4-10</td>
<td>Conduct periodically training to increase the employee skills and competence</td>
</tr>
<tr>
<td></td>
<td>Transferring the company to knowledge company</td>
<td>Knowledge index</td>
<td>7-10</td>
<td>Creating culture of knowledge sharing and applying best practice and lesson learned</td>
</tr>
</tbody>
</table>

5. Conclusion

In this study we show very clearly how SWOT analysis and balanced scorecard effect the performance of construction companies, we take for perceptions which is represent in SWOT as an approach of showing clear result.

All result shows a significant relationship and show the clear point of effectiveness, so we must follow all the perceptions which is (financial, costumer, internal process and, learning and growth). Moreover, how is it possible for the balanced scorecard to make the four prices follow its guidelines, provide the predicted projected profit for this bid and for each component, and
ensure that the outcomes follow a preset and authorized strategy in engineering pricing? The complete accounting information system has a negative impact on the computerized system.

References


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