

Understanding Factors of Competitiveness Consultant Construction Firm in Indonesia

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ABSTRACT

Competitiveness is crucial for construction consulting firms to ensure their long-term viability and sustainability. One way to enhance the competitiveness of construction consulting firms is by understanding the factors of competitiveness. Many organizations find it challenging to identify critical elements required to strengthen their competitive advantage due to the limited amount of research on competitiveness. This study examines journal publications from 1980 to 2025, retrieved from Scopus, Google Scholar, and Crossref databases, using Harzing's *Publish or Perish software* for data collection and analysis. The Prisma method was used to select articles, and both quantitative and qualitative methods were employed to achieve the study's objectives. A total of 45 articles relevant to the research topic were identified and quantitatively analyzed based on their most frequent occurrences in the tabulated data. Semi-structured interviews and focus group discussions with experts from consultant associations and contractor associations were conducted to validate the results of the analysis. This study successfully found the competitiveness factors of construction consulting firms are: human resources, finance, technology, organization, research and development, marketing, strategic management, process management, bidding, innovation, project management, relationships, environment, governance, economy, and performance. These factors are summarized into three categories: internal, external, and index institution (EEI).

Keywords: Factor, competitive, firm, consultant construction

INTRODUCTION

In today's climate of intensifying global competition, companies must uphold strong competitiveness to survive, adapt, and achieve long-term sustainability (Al-Kayed et al., 2024). Competitiveness encompasses not only the capacity to provide low pricing but also includes various elements such as technology, innovation, strategy, and partnerships (Porter, 1985). Understanding the factors of competitiveness is crucial for construction companies due to their significant role in economic growth in developing as well as developed countries (Eltohamy, 2022). Construction companies serve as key providers of economic infrastructure, contribute to the development of supportive environments, and generate employment opportunities. Investigates the competitiveness factors of construction companies to improve organizational performance and support national economic development (Azeem et al., 2020).

An understanding of competitiveness may also be construed as a comprehensive awareness of a company's strengths and weaknesses, which forms the foundation for formulating effective strategies to enhance its competitive advantage (Tan et al., 2008). Measuring and evaluating the factors contributing to company power

serve to assess and strengthen the organization's competitive position (Sha et al., 2008).

Rapid change in construction, along with the challenge of sustainable development, creates complex construction companies and requires both understanding and adaptation to circumstances (Mohd Fahmi *et al*, 2025). These changes in organisational actions and behaviours are ultimately construed as key determinants of a construction company's competitiveness (Badawy et al., 2022).

Porter outlines competitiveness factors that adapt to various conditions, demand factors, industry supports, company strategies, and competing governments (Porter, 1990). Momaya divides competitiveness into three distinct areas: the asset of competitiveness, the process of competitiveness, and asset performance of competitiveness (Ambastha & Momaya, 2004). Yitmen made intellectual capital a factor of competitiveness with sub-factors of human resources, structure, and relations (Yitmen, 2011). In this study, the perspective is that factors and sub-factors are recorded and tabulated.

This study aims to identify the competitiveness of a consultant construction company in Indonesia.

LITERATURE REVIEW

Ericsson introduced the Hexagon Framework to analyse competitiveness in the construction industry. This framework comprises six key elements: factor conditions, demand conditions, corporate strategy, industry structure, the role of government, and international opportunities. This model emphasizes the importance of interaction between internal and external factors in shaping construction industry competitiveness (Ericsson et al., 2005).

Weisheng Lu developed a system to assess and communicate contractor competitiveness, known as the Contractor Competitiveness Assessment and Communication System (C-CACS). This system assists contractors in evaluating their competitive position and identifying areas that require improvement in both performance and competitiveness (Lu et al., 2008).

Orozco and his teams identified factors that influence the competitiveness of construction companies, including project management, innovation, and technical capabilities. They developed competitiveness indices that helps companies to measure and compare their performance against competitor within construction industry in Chile (Orozco et al., 2011).

Whang and Flanagan study the factors influencing contractors' competitiveness in Korea in international markets. They emphasized that company ownership, government support, strong leadership, technology intensity, and specific company characteristics are the critical factors to achieve competitive advantage (Whang & Flanagan, 2024).

In Vietnam, Vy Dang Binh Hyunh highlighted six classification keys of competitiveness for construction: management skills, finance skills, company image, human resource strength, marketing relationships and capabilities, and technical capacity. These indicators serve as a guide for contractors to enhance their competitive strategies (Huynh et al., 2019).

Models help construction companies in developing strategies in the short and long term to enhance their competitiveness in international markets. They have three main components: non-financial internal pillars, non-financial external pillars, and financial pillars (Badawy et al., 2022).

A variety of theoretical factors of competitiveness in construction have been influenced by numerous internal and external factors. In contrast, the theories share a common objective is to develop effective strategies in improving a company's competitive position. The implementation of developed frameworks and models can help companies identify their strengths and weaknesses, as well as respond more adaptively to market dynamics

RESEARCH METHODOLOGY

This study was conducted using a mixed quantitative and qualitative method. The quantitative method was based

on a systematic literature review (SLR) using the PRISMS method. Harzing's Publish initially identified articles from Scopus, Google Scholar, and Crossref. We conducted a search for publication years from 1980 to 2025 using the keyword "competitive" in April 2025. The system limits the search to ten years. Scopus limits article retrieval to a maximum of 200 records per query; Google Scholar limits article retrieval to 100 articles per query, and Crossref allows access to up to 1,000 records per query. Due to the large number of articles retrieved, a search was conducted using Mendeley software with the keywords "construction" or "contractor" for download. We used VOS viewer to map competitiveness factors and the number of existing articles. The next step was to select titles containing the words "construction" or "contractor" to obtain articles on construction/contractor competitiveness. Further analysis on the topic of "factors influencing construction competitiveness" resulted in the selection of articles. These competitiveness factors were then tabulated to generate conclusions.

The qualitative method used in this study was semi-structured interviews with one researcher and author of the book "Indonesian Construction 2030", six experts from consultants in West Sumatra, four contractor experts, One expert from the Public Works Department of West Sumatra Province, one expert from the Water Resources and Construction Development Department, one person from the Public Works Department of Padang City, one person from the Public Works Department of Padang Pariaman Regency, one person from the Mentawai Islands Regency, one expert from each consultant from Aceh Province, Bengkulu Province, West Java Province, East Java Province, Bali Bengkulu Province, DKI Jakarta Province to be asked for their opinions on the competitiveness factors that apply to construction consultant companies in the identification and assessment of the competitiveness factors put forward by the researcher. Furthermore, in a focus group discussion with six experts from different consultants and three contractor company associations in West Sumatra, they were asked for their responses and additional suggestions on the competitiveness factors put forward by the researcher and asked for their approval to assess the competitiveness factors put forward by the researcher. Table 1 show the organization of expert in this paper.

Table 1. Organization of Expert

Expert	Level of Education	Field Expertise	Organization	Interview Method
1	S2	Water Resources Development	Water Resources and Construction	Direct
2	S3	Water Resources Development	Construction Services Development Institute	By telephone
3	S2	Building	West Sumatra Public Works Department	Direct
4	S2	Building	Padang City Public Works Department	Direct
5	S2	Highway	Public Works Service of Padang Pariaman Regency	Direct
6	S2	Highway	Public Works Department of Mentawai Islands Regency	Direct
7	S2	Civil	Consultant from West Sumatra province	Direct, focus group discussion
8	S2	Civil	Consultant from West Sumatra province	Direct, focus group discussion
9	S1	Civil	Consultant from West Sumatra province	Direct, focus group discussion

10	S1	Civil	Consultant from West Sumatra province	Direct, focus group discussion
11	S1	Civil	Consultant from West Sumatra province	Direct, focus group discussion
12	S1	Civil	Consultant from West Sumatra province	Direct, focus group discussion
13	S3	Researcher	Andalas University	Direct
14	S1	Civil	Consultant from Bengkulu province	By telephone
15	S2	Civil	Consultant from Aceh province	By telephone
16	S2	Civil	Consultant from Jakarta province	By telephone
17	S2	Architect	Consultant from East Java province	By telephone
18	S1	Construction	Contractor from West Sumatra province	Focus group discussion
19	S1	Construction	Contractor from West Sumatra province	Focus group discussion
20	S1	Construction	Contractor from West Sumatra province	Focus group discussion
21	S1	Construction	Contractor from West Sumatra province	Focus group discussion

Data Analysis

The prisma method is used in analyzing literature. Searching with scopus with keywords is quite limited. From 1990, only 600 articles were found every 10 years. Searches with google scholar are limited to 200 per search, so 200 articles are done for 10 years. Search with crossref can contain 1000 articles, then directly search from 1980-2025. Initial findings of 1900 articles ready for download. By using Mendeley, it was possible to separate which articles contained the keyword construction, resulting in 852 articles. The 513 downloadable files were examined for their metadata and analyzed with VosViewer to describe clusters of competitive factors. Analysis by title construction left 94 articles. Next, an in-depth content analysis was conducted and 45 selected articles were obtained to serve as references in determining competitive factors, as shown in Figure 1. The quantitative method was based on a systematic literature review (SLR) using the PRISMS method, as shown in Figure 1.

Experts from consultants, contractors, and researchers were given the opportunity to express their opinions on competitive factors to be added. Next in the discussion group forum their agreement on competitiveness factors was tabulated.

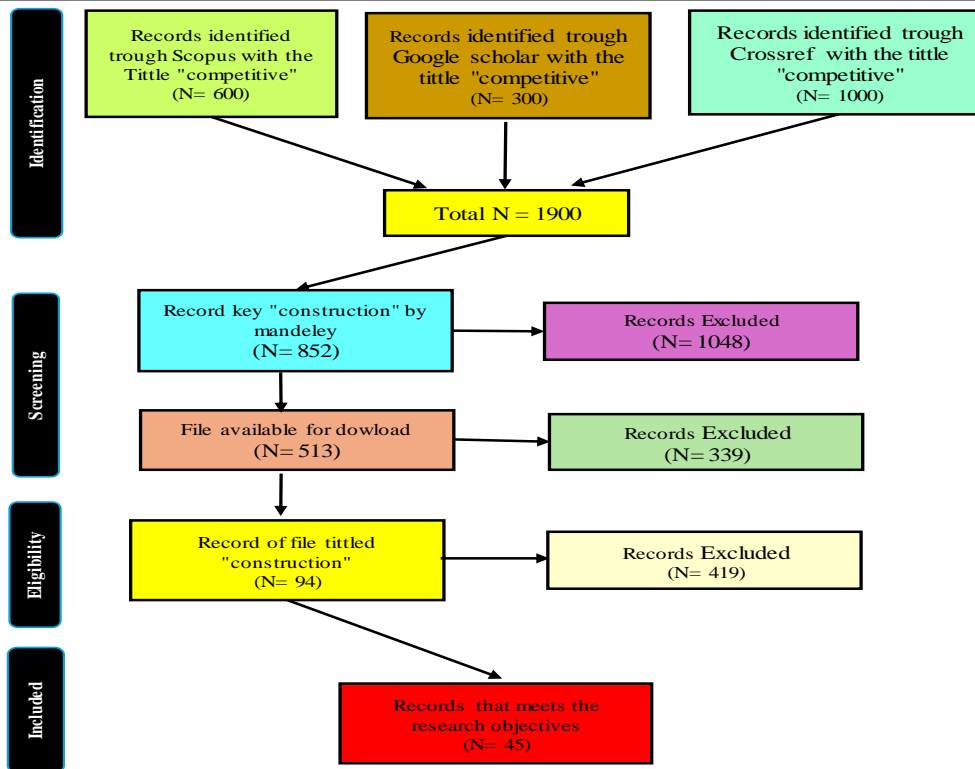


Figure 1. Prisma Analysis chart

RESULTS AND DISCUSSION

Results using VOS Viewer in Figure 2 show clusters of competitiveness factors. The same color indicates the same cluster origin, and the size of the circle indicates the number of articles discussing it. The lines in the figure indicate relationships between factors, such as those seen in competitive advantage, innovation, business strategy, human resources, intellectual capital, strategic management, knowledge, and organizational culture. Competitive advantage and competitiveness are the most studied factors.

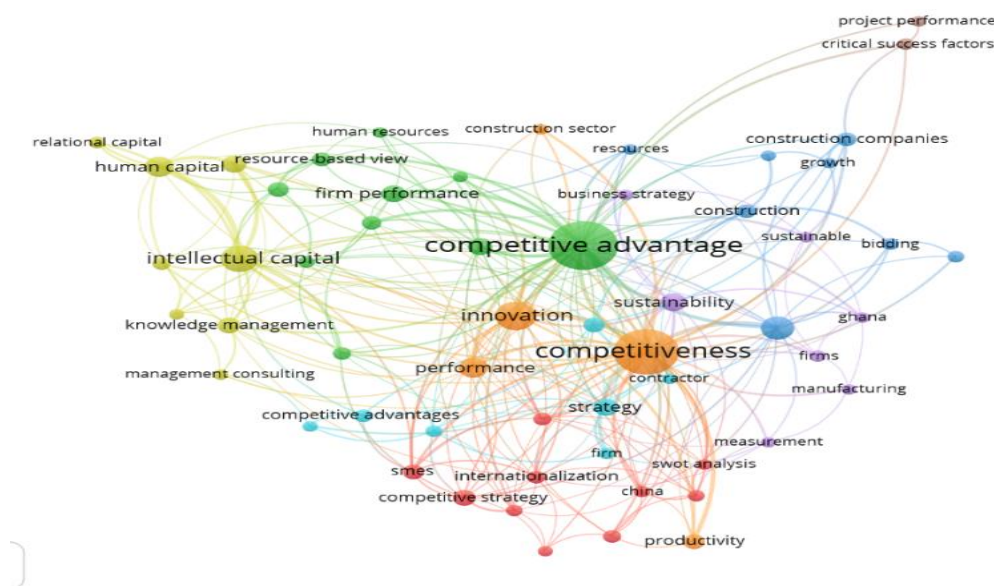


Figure 2. Cluster factor competitive

The evaluation of the construction competitiveness research volume visualized in VOS Viewer using a color gradient can be seen in Figure 3. Yellow indicates the highest density and green indicates the lowest density. The construction competitiveness analysis remains in the green zone, indicating that this research area is still relatively underexplored.

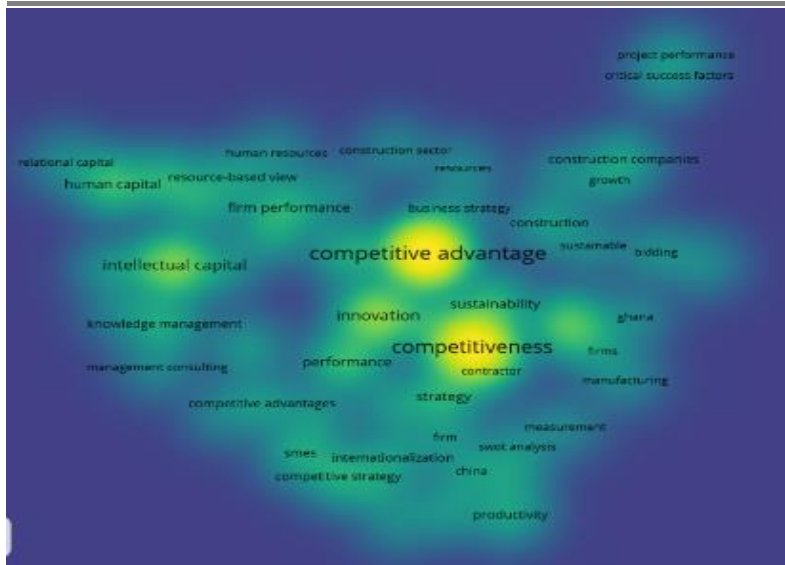


Figure 3 Analysis of study competitiveness density

Within 45 articles analyzed regarding construction competitiveness factors, tabulation was performed as in Table 2. The determination of factors and sub-factors was based on the literature scores as factors. The determination of sub-factors was not based on scores, because the main focus in the 45 main articles was the determination of factors, while the sub-factors followed the main factors in the references. The tabulation results placed the most significant aspect as human resources, with a score of 20 points, while the least significant factor was performance with a score of 3 points.

FACTOR	Ericson, 2003	Tan, 2007	Sha, 2008	Lu, 2008	Orozco, 2010	Orozco, 2011	Tan, 2012	Deng, 2013	Parsa, 2015	Hanafi, 2016	Wisentinge, 2017	Shanar, 2017	Deewong, 2017	Nurisa, 2018	Gimenez, 2019	Oyewbi, 2019	Azeem, 2020	Yasa, 2020	Badawy, 2022	Mohamed, 2022	Sudiansyah, 2022	Guo, 2022	Anjomsboa, 2023	Wahang, 2023	Osman, 2023	Wong, 2023	Romo, 2023	Ngoc, 2024	Kayed, 2024	Asa, 2024	Aigbarinwa, 2024
HUMAN RESOURCE																															
1 Skill, Capacity, Efficiency																															
2 Knowledge																															
3 Team Work																															
4 Experience																															
5 Entrepreneurship																															
6 Attitude, Leadership																															
FINANCIAL																															
1 Financial Resource																															
2 Financial Stability																															
3 Access to Banker and Financial Institution																															
TECHNOLOGI/ TECHNICAL																															
1 Specialized IT																															
2 Information System																															
3 Networking System																															
ORGANIZATION																															
1 Age In Business																															
2 Culture																															
3 Reputation, Image, Brand Name																															
4 Company grade																															
5 Kredibility of the company																															
RESEARCH and DEVELOPMENT																															
1 Scientific Findings																															
2 Patten																															
MARKETING																															
1 Promotion																															
2 Market Knowledge																															
3 Sales																															
STRATEGY MANAGEMENT																															
1 Cost Leadership																															
2 Differentiation																															
3 Focus Customer																															
4 Growth Strategy																															
5 Social Focus																															
6 Flexibility and Adaptability																															
7 Leader Ship																															
MANAGEMENT PROSES																															
1 Supply Chain Management																															
2 System & Procedur																															
3 Operation Process																															
4 Quality Management																															
5 Organizational Structur																															
6 Communication and Coordination																															
7 Just in time																															

Table 2. Factor Competitive Consultant Construction Firm

Some of the competitiveness factors put forward are: human resources, financial resources, technology, bidding, market capacity, regulations, and quality. The tabulation results of the experts' competitiveness factors are shown in Table 3.

[illegible]

Table 3. Frequency by Expert

No	Factor Competitiveness	Frequency According by Expert
1	Human Resource	21
2	Technologi	21
3	Environment	21
4	Project Manaement	21
5	Governmen	21
6	Economic	21
7	Performance	21
8	Financial	20

9	Relation	19
10	Research and Developmen	17
11	Strategy Manaement	16
12	Bidding	15
13	Proces Management	15
14	Invovation	14
15	Marketing	14
16	Organization	14

CONCLUSION

The research findings for construction competitiveness aspects include: 1. Human resources (skill, knowledge, teamwork, Experience, entrepreneurship, attitude), 2. Financial (financial resources, financial stability, access to banks and financial institutions) 3. Technology (specializing in IT, information systems, networking systems), 4. Organization (Age in business, culture, reputation image brand, company grade, credibility of the company, Environmental CSR), 5. R&D (Scientific findings, Patten), 6. Marketing (Promotion, Market knowledge, Sales), 7. Strategy Management (Cost leadership, Differentiation, Focus customer, Growth strategy, Social focus, Flexibility and adaptability, Leadership) 8. Management Process (supply chain management, system and procedure, operation process, quality management, organizational structure, communication and coordination, just-in-time) 9. Bidding (bidding strategy, bidding experience, bidding resource, company experience), 10. Innovation (Product Innovation, technology innovation, marketing innovation), 11. Project management (management health and safety, management quality, management environment, risk management, schedule management), 12. Relation (relationship with owner, relationship with supplier, relationship with partner, relationship with community, relationship with competitor), 13. Environment (Competitor, public investment, Corporate Social Responsibility, Industrial Condition, market condition) 14. Government (political aspect, regulation, Economic), 15. Performance (Profit, Cost/Price, Productivity, Market Share, Sustainability, Growth).

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Conflict Of Interest

The authors declare that there is no conflict of interest regarding this article

Author Contribution

The contributions of each author are as follows: the first author wrote scientific article and collected data, the second, third and fourth author conducted data collection literature review and drafted the article.

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