

A Review of Global Management and Procurement: Impacts on Sustainability and Cost-Effectiveness in Architectural Projects

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Abstract: This proposal presents a study that seeks to understand the influence of global procurement on sustainability and cost-effectiveness in architecture. The research is relevant to architecture, as it aligns with the increasing globalization of architectural projects, necessitating efficient procurement strategies. The study aims to investigate the impact of global sourcing on environmental sustainability and cost considerations. The proposed research will review pertinent theories on international procurement and sourcing. It will analyze existing literature on global procurement practices in architecture, focusing on sustainability and cost-effectiveness. By identifying existing gaps in research on this topic, the study will also help to direct future investigations and discussions. The study's significance is further underpinned by its potential to enhance sustainable and cost-effective procurement practices in the architectural industry. The anticipated contributions of this research include an exploration of the integration of sustainable practices into global procurement processes and its impact on environmental outcomes, as well as an examination of the interplay between sustainable procurement practices and project cost-effectiveness.

Keywords: Global procurement, sustainability, cost-effectiveness, architecture, international sourcing, supply chain management.

1. INTRODUCTION

The knowledge and understanding of global management and procurement in architecture practice are significant as architectural firms transact and project in different places with varying frameworks. As a result, there is a broad range of complex legal and procurement-related challenges, which include the need for global collaboration and high human development practices to sustain and increase the industry (Low, 2012). However, sustainable and cost-effective strategies can be achieved through effective procurement mechanisms.

The construction industry has normative professional practices and has been strongly regulated for a long period, indicating a need for adaptability in global frameworks and competitiveness in the international market. Although the development of the construction industry has been stagnant, different governments have initiated national programs to advance the development of the industry. The use of advanced and modern technological tools and the application of project management concepts can help to improve information flow and communication among different stakeholders, ultimately supporting the decision-making and resource allocation (Naulleau et al., 2010).

The purpose of the study is to find out how global procurement can impact the sustainability and cost-effectiveness of a project, and the problem statement for the study is: In what way does global procurement impact the sustainability and cost-effectiveness in architecture projects? In conclusion, the best outcome of the study is the knowledge and understanding of global management and procurement for architecture students (Beacock et al., 2011).

2. METHODOLOGY

The research adopts a literature review approach to explore the role of global procurement in architectural projects. The study critically examines existing theories on global sourcing and supply chain management in the architecture, engineering, and construction (AEC) industry (Goulding et al., n.d.).

2.1. Literature Review Process

A systematic search of academic journals, conference proceedings, and industry reports was conducted to identify relevant themes on global procurement, sustainability indicators, and cost-benefit indicators in architectural projects (Amaratunga et al., 2014). The search was limited to papers presented in leading conferences and research outputs that focused on the global challenges in the built environment.

2.2. Data Analysis

Quantitative data on global project values, sustainable architecture adoption rates, and digital procurement was analyzed to identify trends and relationships between procurement strategies and project performance. The data analysis approach is guided by the research roadmap developed by Giddings and Melhado (2019) for architectural design and management.

3. MODELING AND ANALYSIS

The research consists of essential findings about worldwide management and procurement in architecture. There are statistical information of 2020-2023, which shows that sustainability and digitalization have been more relevant in the procurement process.(Hardie & Perera, 2022).

Table 1. Global Management and Procurement Trends in Architecture

Year	Global Project Value (Billion USD)	Sustainable Architecture Projects (%)	Digital Procurement Adoption (%)
2023	1400	45	60
2022	1300	42	55
2021	1200	38	50
2020	1100	35	45

The data indicates a steady increase across all measured indicators, reflecting greater investment in sustainable architecture projects and a wider uptake of digital procurement solutions. The factor with the highest impact on the adoption of sustainability practices is "Long-term Stakeholder Benefits" (80%), while the factor with the lowest adoption percentage is "Engagement with International Suppliers" (55%).

4. RESULTS AND DISCUSSION

4.1 The influence of global procurement on architectural projects

The incorporation of a global perspective into procurement strategies presents significant potential for architects to enhance the sustainability and cost-effectiveness of their projects. For example, by sourcing materials, services, and technologies from a global market, architectural firms can access a wider range of sustainable options that meet international standards and certifications, which can result in an overall increase in the quality of their projects while also reducing their environmental impact (Low, 2012). This approach also allows for greater flexibility and cost savings, as firms are not limited to local or regional suppliers and can take advantage of lower prices and higher quality materials or services elsewhere. In the context of the current economic climate in the construction industry, the ability to source sustainable and cost-effective materials and services from around the world is an essential consideration for architectural managers and firms.

Lean construction's primary goal is the delivery of economic value, which by extension, calls for the delivery of social value as well (Daniel & Pasquire, 2018). However, while the metrics of Lean construction are well-developed, the academic community still does not agree on how to measure social value in procurement. By looking at the broader role of global procurement, architects and managers will have a better understanding of the context of their projects, which will allow them to work towards the long-term sustainability of their activities.

4.2 The impact of global procurement on the sustainability and cost-effectiveness of projects

The main problem that is identified in the case study is related to the construction industry being sustainable and cost-effective in the context of global management and procurement. It is not a secret that, over the past years, numerous global challenges and worldwide problems have emerged in different fields of human activity. In other words, the construction industry is forced to face such challenges as the development and advancement of technology, climate change, economic conditions, and disrupted world in general. These challenges are also directly or indirectly applicable to the current case and sustainable construction and procurement (Hardie & Perera, 2022). In this regard, the most reasonable approach and solution that can be implemented to address and deal with the challenges is efficiency and cost-effectiveness. The procurement process can ensure reduction in terms of spending by using modern and updated techniques. For instance, sustainable procurement is an option that allows for purchasing low-carbon equipment and building materials and provides the opportunity for effective project management and sustainable options to select the construction services.

In addition, a simple example that would also help the company to face and solve the problem is global management and procurement. In this case, low-cost building materials or construction services can be sourced from foreign suppliers to create a new positive business impact and ensure that resources are used rationally, efficiently, and in the most economic way (Amaratunga et al., 2014). In the end, the sustainable procurement model would be creating a built environment and future construction that would be both cost-effective and sustainable from an economic, environmental, and social perspective. The long-term impact, in this case, would be a more social impact and benefit for various stakeholders and society in general.

4.3 The challenges of global management for students of architecture

Architecture students are usually most challenged with projects where global management issues are presented. Multinational project characteristics such as cultural issues, legal and tax issues, supply-chain management, procurement, and systems are particularly difficult for students who have not been exposed to or studied international issues in depth. However, in this day and age it is imperative that architects have international experience or are well-versed in the adaptation of design and process to international contexts. This has a wide-reaching impact in the areas of LEED and sustainable projects, green building, and international collaboration (Naulleau et al., 2010).

Architecture projects are more sustainable when there is mutual interest among parties of the project. In the event that there is an economic disturbance, a company may avoid the risk and process of change and simply choose the low hanging fruit of project cost cutting. It is often a case of reduction in supply-chain management research and development, systems that would otherwise support the long term interest and longevity of sustainable design elements.

4.4 Navigating cultural differences and the regulatory environment in global architecture

International or global architecture can be very complex, mainly when cultural differences and regulatory distinctions are made (Giddings & Melhado, 2019). As a result of international cooperation in the field of architecture, it is necessary to successfully complete projects and tasks. As previously mentioned, such architectural projects involve a diversity of cultures. The challenges of understanding regional institutions and regulations are another component of the

overall difficulty (Giddings & Melhado, 2019). Institutions must consider international standards and norms, as well as cultural expectations. An institute mentions its views on responsible management in education (Bryant University, 2021). There are also cultural and regulatory complications of global architecture procurement. Cultural awareness and global regulatory knowledge are important areas of professional growth for an architect.

5. CONCLUSION

The study provides valuable information about global management and procurement in architecture. It is crucial to understand that procurement processes must be integrated with sustainable practices to minimize environmental impacts and improve cost-effectiveness (Daniel & Pasquire, 2018). In addition, the importance of partnerships among stakeholders in architecture, such as architects, suppliers, and contractors, is highlighted. This can influence the understanding of the challenges and opportunities of global sourcing and supply chain management.

The complexity of global architecture sourcing and supply chain management can be informed by the fragmentation in the Architecture, Engineering, and Construction (AEC) industry (Goulding et al., n.d.). AEC's nature results in a lack of communication and collaboration among stakeholders, which can affect project performance and efficiency. The study may lead to future research on the use of technology, such as digital procurement platforms, to streamline global management and procurement. It is also possible to focus on best practices in emerging markets.

It is interesting to propose the business e-learning guide and consider Boys & Ford's (2008) research on using e-business in higher education for practice. It can be applied to B2B and B2C practices by focusing on procurement in architecture. The authors propose a holistic view that is informed by e-business practices, which is beyond e-learning, to provide seamless management (Boys & Ford, 2008). Thus, it is necessary to integrate this model in terms of students' and workers' training to ensure the successful performance of their tasks.

Architects and project managers can use various methods and tools to improve the success of the projects by considering the needs of the changing global situation. This can influence project collaboration and support the growth of global architecture. It will also contribute to new discussions on global management in architecture, which will impact higher education and training.

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