Chapter 8
The Role of Entrepreneurial Leadership in Advancing Façade Performance and Sustainability

Sriparna Guha
http://orcid.org/0000-0003-3092-3722
Amity University, Kolkata, India

Anirban Mandal
http://orcid.org/0000-0002-5130-5424
ICFAI Business School, Kolkata, India

Sandeep Poddar
http://orcid.org/0000-0001-9771-877X
Lincoln University College, Malaysia

ABSTRACT

The construction and building envelope industry is evolving as consumers worldwide desire to be greener, employ smart technologies, and conserve energy. The chapter emphasises the need for entrepreneurial leadership for façade engineering, particularly in performance and sustainability. In the value chain of façade solutions, entrepreneurial leaders innovate not just new materials and systems but also green practices, digital technologies, and market-orientated tactics. This chapter uses theory and case studies to examine how entrepreneurial leadership promotes innovation in smart and adaptable façades, teamwork across disciplines, and

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technical uncertainty and market acceptability. It highlights how executives affect sustainability goals, resource gathering, and strategic decisions in new and current façade firms. The findings contribute to sustainable construction management and built environment technopreneurship discussions.

1. INTRODUCTION

The ecosystem is presently encountering significant economic, environmental, and sociological strains. The economic crisis, disparities in opportunities, unemployment, illnesses, wars, natural catastrophes, climate change, and poverty have been prioritised on the global agenda for sustainable development. Sustainable development denotes the satisfaction of the current generation's wants without jeopardising the capacity of future generations to satisfy their own needs (Nor-Aishah et al., 2020). Environmental concerns, urbanisation, and the need for climate-responsive design are all driving a major shift in the construction industry, especially in the area of façade engineering. Façade systems used to be mostly for looks and structure, but now they are a key part of how well a building works, affecting things like energy efficiency, thermal comfort, and carbon emissions. In this situation, the role of leadership has changed from just running projects to also include strategic thinking, managing innovation, and integrating sustainability.

There is a notable and increasing interest in the application of highly glazed facades in commercial structures. A significant amount of the façade, or in some cases the whole façade, is composed of high transmittance glass systems, sometimes accompanied by sun control mechanisms. The tendency, originating in Europe, is proliferating to other areas, including the United States(Lee et al., 2002; Poddar & Guha, 2021). A subset of these systems utilises a secondary layer to provide a double envelope system, facilitating enhanced venting and ventilation procedures. The articulated justification for employing these design methodologies differs, although it frequently is linked to occupant advantages and sustainable design related to daylighting and energy conservation (Valladares-Rendón et al., 2017; Fernando et al., 2023).

To comply with the advancing criteria of sustainable architectural design, façade materials and systems must conform to these requirements. A significant restriction is the requirement for specific experience and abilities in the design, installation, and maintenance of these systems. Moreover, façade technology may exhibit greater susceptibility to deterioration compared to conventional materials, hence escalating maintenance and replacement expenses over time (Prieto et al., 2019; Fernando et al., 2023). The integration of complicated systems, such as lighting and shading,