Assessing the Resilience and Adaptability of Sri Lankan Interior Design and Build Companies Amidst and Post the COVID-19 Pandemic

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Abstract— **This study investigates how Colombo, Sri Lanka-based interior design and construction companies responded to the unusual problems posed by the COVID-19 pandemic, which had a negative impact on supply chains, site visits, Design process changing, and client relationships. The study looks at how ordinary design processes have changed and how that has directly impacted operations, earnings, and customer interactions, focusing on six severely impacted organizations. It looks at tactics including online discussions, improved digital project management tools, and stringent health and safety regulations on construction sites. These tactics' efficacy in preserving revenue stability, business continuity, and customer happiness are evaluated. The study intends to provide insightful information about the adaptability and resilience of interior design and build companies by offering a thorough examination of these responses and adaptations.**

Keywords— resilience, adaptability, interior design and build companies, covid 19 pandemic

I. Introduction

The COVID-19 pandemic caused significant disruptions for interior design companies in Colombo, Sri Lanka, affecting operations, earnings, and clientele due to lockdowns, travel restrictions, and broken supply chains. This study examines the resilience and adaptability of six Colombo-based companies, focusing on how they maintained business continuity through innovative strategies and adaptations in design processes and material selection during and after the pandemic. The research highlights the challenges faced and the creative solutions implemented to navigate the crisis. This study focuses on six interior design and build companies in Colombo, Sri Lanka, that have been significantly impacted by the COVID-19 pandemic. The industry, which relies heavily on client relationships, site visits, and a stable supply chain, faced unprecedented challenges due to the pandemic. These businesses had to quickly adapt to new circumstances, finding innovative ways to continue their operations and meet client needs despite various restrictions and health concerns. The pandemic disrupted key aspects of the interior design process, such as client meetings, site visits, material procurement, and project execution. Lockdowns and social distancing made in-person meetings difficult, pushing companies to use online tools like Zoom and Microsoft Teams for client interactions. Initial site assessments were halted and later conducted under strict health guidelines. The global supply chain disruptions caused delays and increased costs, prompting companies to turn to local suppliers for materials. Additionally, workforce limitations and lockdowns affected on-site operations, necessitating new health and safety protocols. The immediate impacts of the pandemic on Colombo's interior design industry included operational disruptions, revenue declines, and changes in client demands. Projects were delayed or halted, and companies had to navigate new regulations and procedures. The economic uncertainty led to a decrease in revenue, and businesses had to find ways to cut costs while maintaining quality. Additionally, there was a shift in client priorities, with increased demand for home offices, health-oriented spaces, and multifunctional living areas. Companies had to quickly adapt their offerings to meet these new demands, demonstrating their ability to innovate and remain relevant in a changing market.

II. Literature Review

A. Definition of Interior Design

Good interior design adds a new dimension to a space. It can increase our efficiency in the way we go about our daily lives, and it adds depth, understanding, and meaning to the built environment. Thoughtful and well-crafted design makes a space easier to understand, and experiencing such a space lifts the spirit, too. It is, therefore, not just about the aesthetic; it is a practical and philosophical discipline. Beautiful spaces show a logical and rational questioning of the status quo and can be an honest attempt to find new and exciting ways to lead our lives. In some areas of design, such as hospitality design (the design of bars, restaurants, hotels, etc.), the designer's work can play a large part in creating a successful business for the owners. the stock returns in China. From these studies, it is reasonably apparent that large ownership holdings have a mixed effect on stock performance, which diverges from country to country.

B. Introduction to Interior Design Companies

Companies that specialize in designing aesthetically beautiful and practical interior environments for a range of settings, including residential, commercial, institutional, and hospitality settings, are known as interior design companies. These businesses use talented individuals to work together to realize their clients' design concepts, including project managers, interior designers, architects, and decorators. A variety of services are provided by interior design companies, such as project management, furniture selection, colour coordination, lighting design, and space planning. They frequently collaborate closely with clients to fully grasp their requirements, preferences, and financial limitations before adjusting their design solutions. Construction, interior design, and international promotion companies make a major contribution to providing construction and interior design

services. Construction activities are the complete or a part of a sequence of making plans or implementation activities along with supervision that consists of work, architectural, civil, electrical, and environmental.

C. Conventional Design Process

According to (Jones et al. 2018), interior design often adheres to a predetermined procedure that includes several sequential steps, such as ideation, space planning, material selection, and implementation. Designers can methodically create and execute their ideas thanks to this organized process. The significance of client collaboration is underscored by (Smith and Johnson 2019), who point out that face-to-face meetings and site visits help designers and clients communicate effectively and gain a better grasp of the client's preferences and project requirements (johnson, 2019).

D. Project management (PM) process framework in interior design projects

Clevenger and Haymaker (2011) define design process as "implementation of a strategy to a challenge resulting in an exploration" ideally made of three (Adapted from: RIBA, 2020) elements namely, challenge, strategy, and exploration. The Council for Interior Design Qualification, CIDQ (2019) defined the widely accepted phases of the interior design process as Programming, Schematic Design, Design Development, Contract Documentation and Contract Administration. The council further lists the tasks that the practice and management of an interior design project may involve. These include: (Adapted from: RIBA, 2020) Project management; (Adapted from: RIBA, 2020) Project goals which involves the understanding and documentation of the client's and stakeholders' goals and objectives with reference to the project (project scope management); (Adapted from: RIBA, 2020) Data collection in order to maximize design outcomes and stakeholder satisfaction, evaluation and assessment of existing site conditions; (Adapted from: RIBA, 2020) Design conceptualization; Selection of materials, furniture, fitting and equipment (FF&E); Documentation that involves contracts and permits as well as documentation of design by phases of schematic, design development as well as construction drawings and specifications;

Coordination of other consultants such architects, engineers and other specialty consultants; Contract administration that involves the tasks of distribution and bid analysis, the administration of construction, review and pay-outs of contractors, assessment of shop drawings and other relevant documents and drawings, site visits and work progress reports and lastly, project close out; and Pre-Design and Post-Design Services which are used to measure the success of the project with reference to client or stakeholder's expectations and goals. Therefore, (RIBA, 2020) (Adapted from: RIBA, 2020) of stock market and export dip, which deteriorated its corporate financial health. Prior to the crisis, Indian market and economy have shown a growth and a positive trend. The economic and market performance of pre-crisis is better than the post-crisis phase in India, which specifies that pre-crisis period was a growth phase and post-crisis was a sluggish phase. Hence, consideration of these two periods would furnish the fluctuations that occurred in investors' sentiment, equity investments and stock performances during these phases.

E. The factors influence in covid 19 pandemic

1. Features of the Virus

SARS-CoV-2 is a new coronavirus with distinct features that influence its severity, ability to avoid immune responses, and transmission. Over time, variations in the virus may arise, resulting in modifications to the degree of disease severity, vaccine efficacy, and transmissibility.

2. Public Health Measures

The transmission of COVID-19 is greatly impacted by the adoption and observance of public health measures such mask use, social distance, hand cleanliness, and immunization. These policies' efficacy varies according to community involvement, enforcement, and compliance.

3. Government Reactions

A major factor in preventing the spread of COVID-19 is government policies and actions related to the pandemic, such as travel bans, lockdowns, testing plans, and immunization efforts. The efficacy, timeliness, and strictness of these regulations differ throughout nations and areas.

4. Healthcare Capacity

Factors like hospitalizations, mortality rates, and access to care are all impacted by the ability of healthcare systems to respond to the COVID-19 pandemic. Healthcare staff capacity, hospital bed availability, ventilator availability, and medical supply availability are all factors that impact healthcare capacity.

F. Introduction of the construction industry and interior design and build companies in Sri Lanka

The COVID-19 pandemic has been one of the most significant health emergencies in recent history, leading to deep recessions and disruptions in global value chains. (Tumwesigye et al.2020) highlights the severity of the economic downturn, comparable to the Great Depression, affecting over 216 nations and territories. The impact has been profound, with millions of confirmed cases and deaths worldwide (World Health Organization, 2021). Lockdowns, travel bans, and labour mobility restrictions have caused a slowdown in economic activities globally, affecting businesses and supply chains (Shafi et al., 2020). The construction industry, a crucial sector in many economies, has experienced unprecedented challenges, including project delays, disruptions, and financial difficulties (Fairlie, 2020).

The effects of the pandemic on the construction industry in Sri Lanka have been significant, with almost every construction project being delayed or disrupted (Fernando, 2020) note the cancellation of projects and financial difficulties faced by construction companies due to a shortage of funds and building supplies. The Central Bank of Sri Lanka (CBSL) acknowledges the pandemic's adverse impact on the country's economic and social infrastructure, including public transportation and the ports sector (Central Bank of Sri Lanka, 2020). Despite initial signs of recovery, the construction industry contracted again with the third wave of the pandemic, leading to a decrease in GDP from the construction sector (Department of Census and Statistics, Sri Lanka, 2021).

Certain firm-specific factors based on previous studies are considered to control their effect on the stock return. This

study includes firm size, firm age, firm risk, profitability, leverage, current ratio, and dividend pay-out to gauge the effect.

G. Intraduct of the Resilience and COVID 19 Pandemic

The document "Responsive Interior Tactics for Adaptation and Resilience" from Interiority (2022) discusses the importance of resilience and adaptability in design disciplines, particularly in response to the rapid changes and complex issues brought on by contemporary challenges such as the COVID-19 pandemic. The pandemic has highlighted the need for the design field to strengthen its capacity to adapt and predict future changes, moving away from fixed and permanent architectural solutions that quickly become obsolete.

H. Intraduct of the Adaptability and COVID 19 Pandemic

The COVID-19 epidemic has brought to light how vital flexibility is to every aspect of society. As the virus expanded around the world, people, companies, and institutions had to quickly adapt to hitherto unheard-of difficulties. The quick adoption of new technology, the shift to remote employment, and the modification of daily routines and social conventions all served as examples of this flexibility. Adaptability in the healthcare industry was defined by the quick creation and implementation of telemedicine services, the restructuring of hospital staffing, and the acceleration of vaccine development and delivery. With the transition of educational institutions to online learning environments, teachers and students have to adapt to new pedagogical approaches. The epidemic also made clear how crucial emotional resilience is for assisting individuals in navigating the stress and uncertainty of a world that is changing quickly. Bruno F. Abrantes.

I. Data Collection Methods

Owners, executives, and staff members of interior design and building companies make up the target group. Quantitative Methods Surveys using questionnaires sent via Google Forms to 10 members from each of the 6 selected interior design companies, totalling 60 respondents.

J. Structure of the Questionnaire

General Questions Age range, position within the organization, size of the business, number of years of operation, and overall COVID-19 impact. Resilience includes strategies for adaptation, retrofitting initiatives, modifications to designs, the effect of changes in material prices, and the use of substitute materials. Adaptability Online platform use, tactical response effectiveness, flexibility in design processes, use of hybrid design approaches, and online platform constraints. The COVID-19 pandemic has had an impact on various aspects of life, including the design process, supply chain disruption, financial management, and alternative financial solutions.

III.METHODOLOGY

This study employs data collection approaches strategy that combines quantitative techniques. With this method, a thorough grasp of the adaptability and resilience of Sri Lankan interior design and build companies will be possible.

A. Research Design

Quantitative research that uses structured questionnaires to get quantifiable data.

B. Sample and Population

Population Sri Lankan interior design and build in Colombo. Sample 60 responses from 6 interior design and build companies, each with 10 members.

C. Instrument for Gathering Data

25 questions in a structured questionnaire with sections covering general inquiries, COVID-19 impact, resilience and adaptation outcomes, and resilience and adaptability parameters.



Fig. 1. Research key words and research topic

D. Data Gathering Methodology

Google Forms will be used to distribute the questionnaire via email to facilitate and expedite the gathering of responses.

E. Methods of Data Analysis

Using descriptive statistics, the data will be compiled.

Regression analysis is used inferential statistics used to analyze the correlations between variables and make inferences about the adaptability and resilience of the businesses. 3.5 Research Strategy.

F. Selection

This study will be conducted on the highly effected area to the covid 19 pandemic, focused on 06 interior design and build companies in Colombo Sri Lanka.

1. Leema Creations (Pvt) Ltd Colombo 06.
2. B Creations (Pvt) Ltd Kohuwala Colombo 06.
3. Monara Creation (Pvt) Ltd Nugegoda Colombo 07.
4. Widac Commercial Interiors (Pvt) Ltd Colombo 07.
5. A Design Studio (Pvt) Ltd Colombo 5.
6. SJ Interiors (Pvt) Ltd Kottawa.

IV. Data Analysis

A sizable portion of businesses (41%) frequently employed hybrid design techniques, suggesting Adaptability Hybrid Design strong propensity for adaptable and flexible procedures. Adopted: A reasonable percentage (42.6%) occasionally used hybrid techniques, demonstrating a moderate degree of adaptabilityThis chapter examines the relationship between the dependent variable (the resilience and adaptability of internal design and built companies) and the independent variables (variables such as the impact of COVID-19, adaptation techniques and changes to design processes). Interior design and construction businesses in Colombo, Sri Lanka are the subject of this study. The study examines how these businesses were affected by the outbreak of COVID-19 and how they changed their operations to deal with the difficulties presented by the crisis. Using Google Form, information was collected from 60 members of six interior design and build companies selected based on a researcher-designed questionnaire survey. Graphs were used to evaluate responses and display data, providing insight into the adaptation and durability of these businesses during and after the pandemic.

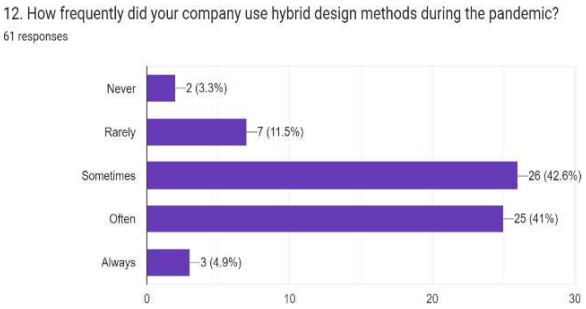


Fig. 2. Adaptability of hybrid design 61 responses

A. Impact of Design Process

1. Resilience: Reuse Practices

According to the research, during the pandemic, a substantial majority of businesses (93.2%) modified their reuse procedures to some degree. Just 6.8% of businesses said they rarely or never used reuse techniques.

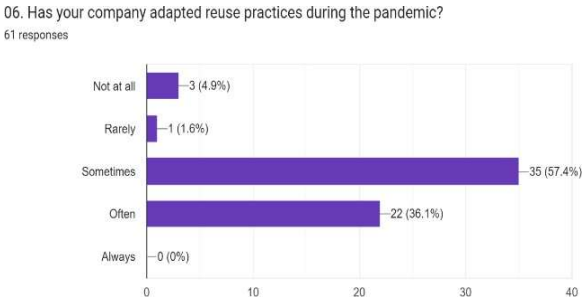


Fig. 3. Resilience, reuse practices

2. Retrofitting Projects

Retrofitting projects were sometimes (60.7%) or often (29.5%) undertaken, highlighting an adaptive response to new demands and safety requirements during the pandemic.

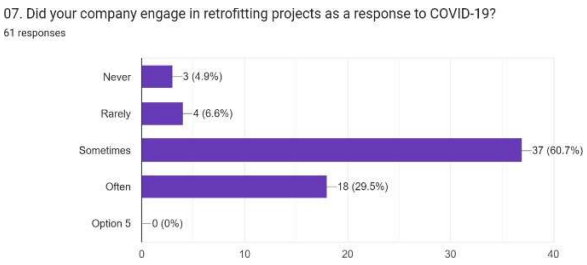


Fig. 4. Resilience, retrofitting projects

B. Adaptability

1. Hybrid Design

A sizable portion of businesses (41%) frequently employed hybrid design techniques, suggesting a strong propensity for adaptable and flexible procedures. Adopted: A reasonable percentage (42.6%) occasionally used hybrid techniques, demonstrating a moderate degree of adaptability.

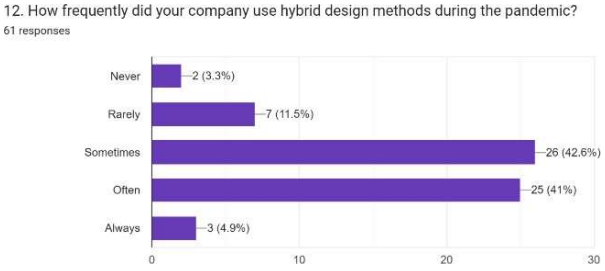


Fig. 5. Adaptability of hybrid design 61 responses

2. Online Flatforms

Common Practice - 49.2% of businesses routinely use online platforms, with "Sometimes" being the most common response. This suggests a balanced approach to digital collaboration. Frequent Use: At 32.8%, "Often" was the second most popular response, indicating a high dependence on internet resources for communication.

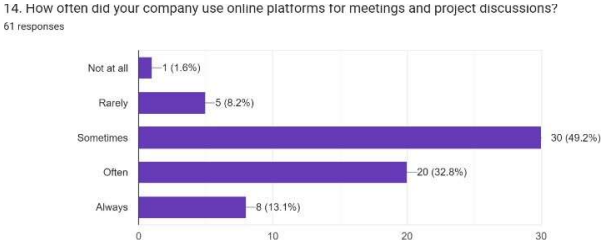


Fig. 6. Adaptability of online platforms

C. Impact of COVID 19 Pandemic

1. Design Process

Most responses (50.8%) indicated a significant impact, suggesting that COVID-19 greatly influenced design processes, likely requiring substantial adjustments. Moderate Impact - A notable portion (41%) experienced a moderate impact.

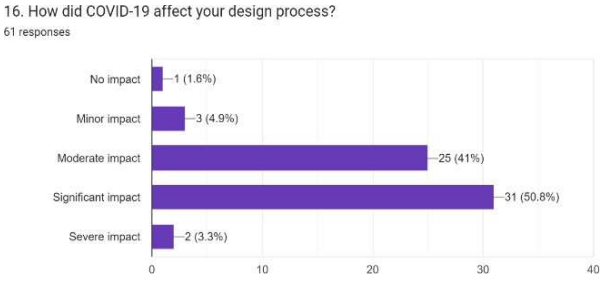


Fig. 7. Impact of design process

2. Supply Chain

Most respondents (55.7%) experienced moderate disruption, indicating significant challenges that required adjustments in the supply chain. High Disruption - A substantial number (39.3%) faced high disruption, suggesting major difficulties that likely demanded extensive changes to operations.

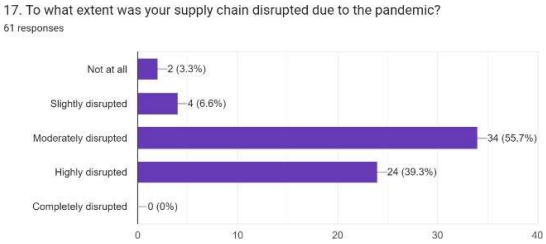


Fig. 8. Impact of supply chain

3. Financial Variables

This analysis demonstrates that the pandemic had a variety of effects on financial elements, the most significant of which being a change in material pricing, which may have required many design and build companies to adjust their operating and budgetary plans.

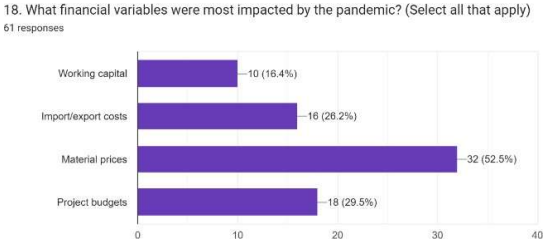


Fig. 9. Impact of financial

V. CONCLUSION

A. Introduction of the conclusion

To give readers a thorough overview of the entire study, Chapter 06 will highlight all the major discoveries made during the investigation. This chapter will provide a succinct and understandable summary of the findings made by the researcher during the investigation. Drawing on these conclusions, the researcher will provide useful suggestions. These suggestions will be clear-cut and simple to understand, guaranteeing that they can be used successfully. They will come from the research's specific findings and content. The intention is to offer practical guidance that will enhance interior design and build companies capacity for resilience and adaptation, particularly considering current events like the COVID-19 epidemic.

B. In summary

This chapter looked at the adaptation and resiliency of Colombo, Sri Lanka's interior design and construction industries during and after the COVID-19 epidemic. The goal of the study was to determine how the pandemic affected these businesses and how they changed how they operated to meet the difficulties. 60 employees of six interior design companies provided information via a Google Forms survey. The investigation offered insightful information about these businesses' resilience and adaptation tactics both during and after the pandemic.

C. Key Findings

- General Workforce Demographics
- Company Size and Impact
- Resilience Strategies
- Adaptability Tactics
- Impact of COVID-19
- Resilience and Adaptability Outcomes

D. Comparing During and Post COVID-19

1. Design Process: During COVID-19

Significant changes were implemented to meet new health and safety requirements, such as social distancing, enhanced sanitation, and remote working conditions. Hybrid design techniques, combining traditional and digital methods, became more prevalent to facilitate collaboration and project management despite physical distancing. Many businesses adopted digital tools for design, communication, and project management, allowing for seamless remote operations and client interactions.

2. Post COVID-19

The flexible design processes and hybrid techniques adopted during the pandemic persisted, becoming standard practice in many companies. Continued use of digital tools and hybrid methods improved efficiency and collaboration, even as some in-person activities resumed. The industry saw a lasting shift towards more flexible and adaptive design processes, with an increased emphasis on health and safety in workspace layouts and project planning.

3. Materials and Supply Chain: During COVID-19

Timeliness and budgets for projects were severely disrupted by material shortages and pricing swings. To alleviate shortages, businesses were forced to implement reuse tactics and repurpose materials from ongoing projects. In the face of disruptions to the global supply chain, it became imperative to investigate alternative materials and sources to ensure project continuity. Companies were forced to create backup plans and new procurement techniques to handle unforeseen supply chain problems.

4. Post COVID-19

While some supply chain interruptions persisted, businesses had developed more robust procedures, like

strategic material storage and varied sourcing. Businesses were better able to address continuing issues because of stronger connections with suppliers and improved supply chain management.

The pandemic experience highlighted the value of supply chain flexibility, resulting in more resilient and flexible procurement tactics.

5. Financial Variables: During COVID-19

There was a serious threat to its financial stability due to declining income and rising operating expenses. To keep going, a lot of companies looked outside for finance, such as loans, investor capital, and government assistance programs. It was common practice to implement cost-cutting strategies such staff reduction, overhead expense reduction, and operational optimization. To sustain income streams and financial viability, diversifying services and investigating new markets became essential tactics.

6. Post COVID-19

Businesses that weathered the pandemic successfully preserved their financial stability by demonstrating enhanced financial management and strategic planning. Some companies were still having trouble managing their finances, and they had to cope with residual issues including missed payments, loan repayments, and decreased cash flow. Businesses should prioritize creating financial buffers and investigating novel revenue streams to maintain a flexible financial strategy.

VI. Comprehensive Summary

Comparing corporate operations during and post COVID-19 demonstrates notable changes to financial strategies, materials and supply chain management, and design processes. Rapid modifications were required because of the epidemic, and resilience was encouraged. Many of these adaptations have since become standard practices in company operations. The long-term effects of COVID-19 have highlighted how crucial it is for interior design and construction companies to be adaptable, creative, and have solid planning to ensure their survival and expansion.

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