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Architectural Entrepreneurship Resilience: A Conceptual Model for Adaptive Business Strategies in Post-Pandemic

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Abstract

Architectural business owners were massively affected by the global COVID-19 pandemic issues. There are negative and positive impacts of a pandemic on entrepreneurial ventures, especially in the architecture industry. Every architectural business owner struggles to maintain and sustain their business. The pandemic response to new challenges and adaptation to ensure continuity. Hence, this gives chances to identify the values through their business to survive during this crucial post-pandemic period. Architectural firms have acted upon innovative ideas to deal with business and survive. Here we identify the theoretical framework of architectural entrepreneurship and business model to give insights criteria for the conceptual model. The theoretical framework develops from understanding an architect, architectural firm, architectural management, architectural entrepreneurship, and business model. The concept model to achieve a resilient business model emphasized the interconnectedness and significance of each element. The development of the conceptual model started with the identification between architectural practice and management. Subsequently, articulate together the impact of the pandemic and firms' value goals & motivation. The articulation contributes to identifying the resilient business model.

Keywords: Architectural Entrepreneurship, Architectural Business, Architectural Management, Resilient Business Model

Introduction

The pandemic already caused ecosystem paralysis and resulted in high levels of anxiety in business operations as noted by (Ashiru et al., 2022). The implementation of lockdown policies during the outbreak has particularly posed significant challenges for architectural practices, worsening existing difficulties. There are numerous critical concerns have surfaced

within the realm of architecture. These include the transition of remote work and collaboration, design consideration for health and safety, impact on construction and project timelines, adaptation of existing spaces, sustainability and resilience, community engagement and social impact, and mental health and well-being.
The COVID-19 crisis has ushered in a mix of positive and negative effects on entrepreneurial ventures, as Krishnan et al (2022) have observed. This dynamic has prompted architectural firm owners to adopt innovative strategies to navigate the challenges caused by the pandemic. Particularly, the crisis has highlighted the importance of embracing digital experiences and seizing global opportunities, while simultaneously catalysing a departure from traditional architectural norms. The global health crisis has overturned traditional modes of operation, compelling firms to undergo a comprehensive reassessment of their strategies and approaches.

Industry experts, such as Paiola et al (2022), stress the transformative potential of Industry 4.0 technologies like the Internet of Things (IoT), which enable firms to remotely manage product functions and innovate new business models. The beginning of Industry 4.0 technologies offered architectural enterprises unparalleled opportunities for transformation and growth. In response to these shifts, small and medium-sized enterprises (SMEs) must pivot towards resilient strategies and entrepreneurial innovation, integrating digital work solutions and e-learning to ensure the continuity, sustainability, and future success of their ventures, as emphasized by (Hossain et al., 2022). In navigating the uncertainty of the pandemic, SMEs must adopt a multifaceted approach, integrating digital work solutions and e-learning platforms into their operational framework to sustain adaptability and competitiveness. Prioritizing innovation and leveraging transformative potential digital technologies, architectural ventures can emerge stronger, more resilient, and better equipped to thrive in the post-pandemic.

In Malaysia, the pathway to becoming a certified architect is thoroughly outlined by the Board of Architects Malaysia (LAM), where the completion of both LAM Part I and LAM Part II qualifications is required. These two segments, thoroughly created by LAM, serve as crucial checkpoints ensuring that graduates are equipped with the necessary attributes, knowledge, and skills demanded by the profession. A graduate of LAM Part I is expected to demonstrate proficiency in generating designs of suitable complexity, exhibit a comprehensive understanding of cultural and historical contexts, showcase creativity and innovation in their work, and develop designs that meet regulatory standards. Additionally, they should possess the ability to effectively translate conceptual designs into detailed construction drawings while fostering collaboration within a team (CAAEM, 2019).

Subsequently, a graduate of LAM Part II is required to further refine their architectural design, demonstrating capabilities in producing designs of heightened complexity and scale. This entails the critical evaluation of functional design principles, the seamless integration of architectural design with technological advancements, environmental considerations, cultural sensitivities, and urban planning imperatives. Moreover, they must proficiently utilize appropriate graphic representation and modeling techniques to communicate their ideas effectively, collaborate efficiently within multidisciplinary teams, and comprehend the broader societal and environmental aspects of their architectural interventions. It is crucial for them to also exhibit a keen awareness of cost implications, ensure compliance with

regulatory frameworks, and demonstrate proficiency in architectural management principles (CAAEM, 2019).

Transitioning towards professional practice as an architect in Malaysia necessitates successful completion of the LAM Part III Professional Examinations, administered by the Architectural Examination Council Malaysia in LAM. LAM clearly emphasizes that these examinations are designed to assess the skills, competencies, and maturity requisite for attaining the status of a Professional Architect. This rigorous assessment process underscores the profession's commitment to upholding standards of excellence and ensuring that practitioners are well-equipped to navigate the complexities of architectural practice (MPSLAM, 2006).

The architectural profession in Malaysia operates within a robust regulatory framework established by the Architects Act 1967 (Act 117) & Rules, which was stated by the Parliament. Complemented by the Architect Rules 1996 (Amendments 2015) under the scope of the Minister of Works Malaysia, as well as circulars issued by LAM, this framework serves to govern and guide architectural practice in the country. Particularly, LAM prioritizes the qualifications and competencies of professional architects, mandating that they possess the requisite qualifications to engage in self-regulated practice, thereby ensuring the integrity and professionalism of the architectural profession in Malaysia. Hence, upon successful completion of the LAM Part III Professional Examinations, individuals are required to register with LAM to become certified professional architects and establish architectural firms (Architects Act 1967 (Act 117) & Rules, 2015)

Concerning the COVID-19 pandemic issue, architectural firms have found themselves struggling with significant challenges as they attempt to adapt to the unpredictable post-pandemic market environment. Before the onset of the pandemic, the role of architects within the construction industry had already been undergoing a process of limitation during the industry's evolution, as highlighted by (Burr and Jones, 2010). Moreover, Alharbi (2013) pointed out that the conservative practices inherent in many architectural firms hindered their ability to innovate and respond dynamically to emerging challenges. The pandemic further worsened these challenges, as noted by Gammanage and Gunarathna (2022), who emphasized the dramatic shift in business operations characterized by increased uncertainty and a stringent focus on safety measures to mitigate invisible threats. Many businesses found themselves at a standstill or, in some cases, forced to shutter operations altogether, underscoring the urgency of cultivating resilience in navigating industry challenges in the post-pandemic landscape.

The understanding of architectural entrepreneurship becomes evident that firms must navigate a complex interplay of challenges and opportunities in the wake of crises. The multifaceted nature of these challenges underscores the necessity for architects to embrace a strategic approach to entrepreneurship, characterized by adaptability, innovation, and resilience. In essence, the ability to seize emerging opportunities while effectively mitigating risks hinges upon the cultivation of strategic entrepreneurship knowledge within architectural practices. By leveraging insights from crisis management literature and entrepreneurial education initiatives, firms can equip themselves with the tools and strategies needed to thrive in the dynamic post-crisis landscape, thus ensuring their long-term viability and success.

A notable research gap exists in the study of architectural entrepreneurship, particularly concerning the adaptability of firms to new business opportunities during dynamic market conditions post-crisis. As shown in Figure 1, there is a lack of entrepreneurial knowledge within the architectural sector, which significantly limits the growth potential of businesses. While not solely focused on educational interventions, Cui and Bell (2022) highlight the important impact of entrepreneurial education activities on shaping both intention and behavior within entrepreneurial activities. Recognizing the mixture of negative and positive outcomes slowing from crises, such as the inherent risk of failure juxtaposed with newfound opportunities, Krishnan et al (2022) highlight the importance of crisis management techniques in fostering an organization's proactive, adaptive, and dynamically resilient posture. Thus, there is an essential need for strategic entrepreneurship knowledge to equip firms with efficient methodologies for developing resilient business models during uncertainty.

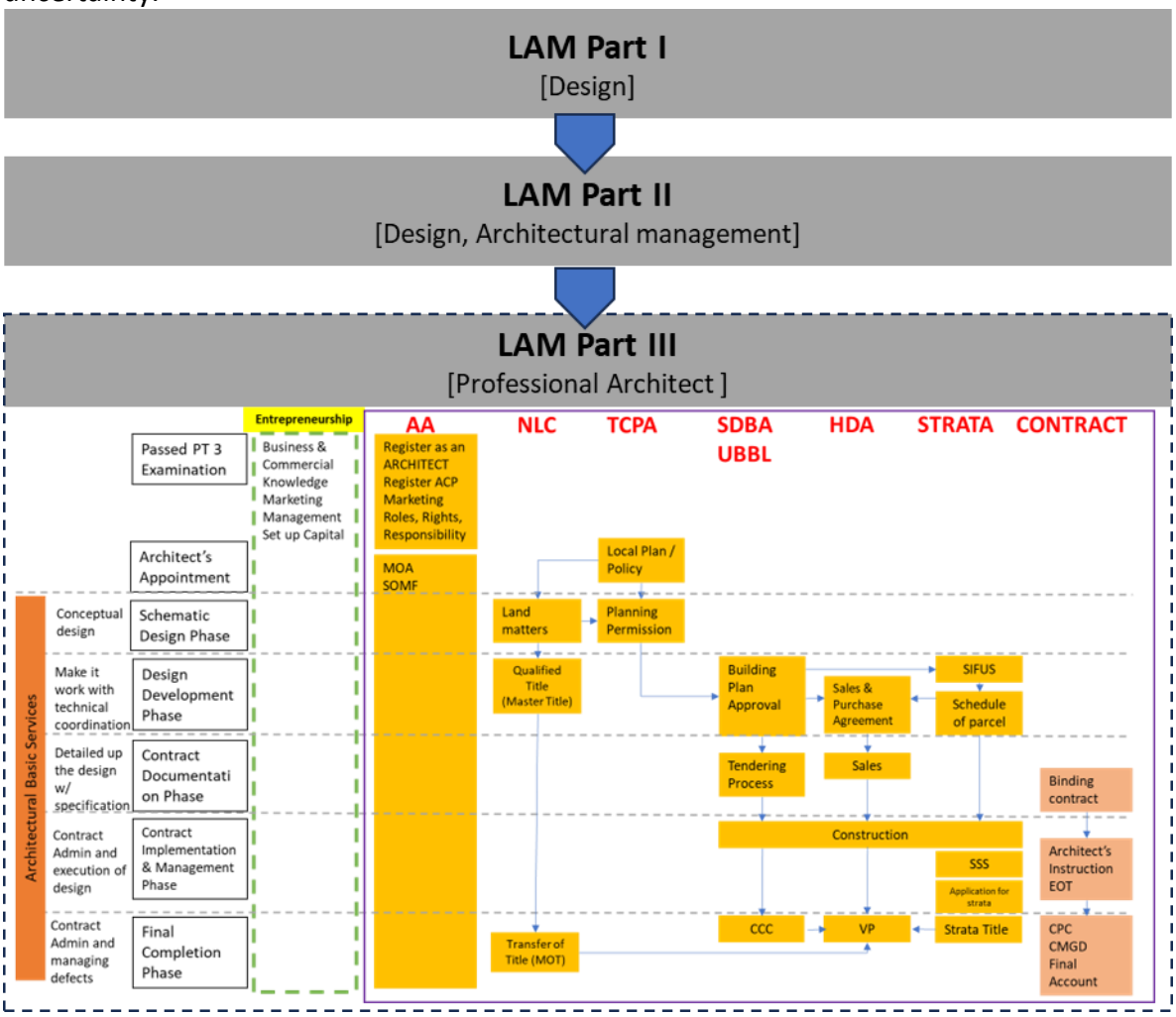


Figure 1: Identification of Research Gap of Architect's practice and knowledge

Methodology

The objective of this study is to uncover resilient business models within the field of architectural entrepreneurship, emphasizing adaptability as a key determinant. The investigation searches into how innovative crisis management strategies can enhance organizational sustainability and longevity. The research methodology involves the review of relevant literature encompassing professional architectural practices and knowledge, with a

specific focus on resilient business models capable of fostering adaptable architectural activities and resilience. The study seeks to identify gaps in existing research and investigate how architectural firms can adapt to new business opportunities, especially by fostering creativity and flexibility in the face of crises.

The study was done through an analysis of the literature review on Architectural Practice that related to the aspects of Architectural Entrepreneurship. The resources of the study are mostly from secondary data which are journal articles, thesis, books, and acts. The resources were taken between the years 1977 till 2023 to ensure that all information was included. The journal article was retrieved from Scopus, Science Direct, Taylor & Francis Online, and Google Scholar using the keywords "Architectural Practice", "Architectural Management", "Architectural Entrepreneurship", and "Architectural Business Model" for this review paper, more than 20 articles are included into the review analysis.

Literature Review

Historical Review of Architecture Profession

The First Architect

Identifying the very first architect in history remains a challenging task, yet the significance of architecture has been evident since ancient times. Throughout the ages, early human civilizations constructed architectural sights to fulfill fundamental needs such as shelter, religious worship, and communal gatherings. Notable examples include the megalithic structure of Stonehenge in England around 3000 BC, the monumental pyramids and temples erected by ancient Egyptians, and the iconic Parthenon temple designed by architects like Iktinos and Callicrates in ancient Greece. Similarly, the architectural wonders of ancient Rome, including the Colosseum and aqueducts, were crafted by architects whose identities often remain unknown, though figures like Vitruvius left lasting legacies with their architectural principles. In subsequent eras, not to forget Michelangelo further shaped architectural landscapes during the Middle Ages and Renaissance (Robert M. Craig & Spiro K. Kostof, 1977). The evolution of architectural history has strongly influenced contemporary architectural practice, leading to the development of varies type of business model.

Architecture in Malaysia

Malaysia remained a British colony until 1957, during which time the British Legal System significantly shaped Malaysia's legal and regulatory framework including the architectural statutory system. However, Malaysia's legal framework has since evolved independently, acquiring distinctive characteristics and requirements. Many early architectural works in Malaysia were undertaken by British architects (Kah Chun et al., 2005), resulting in the construction of iconic structures such as government buildings, schools, and churches. Notably, the researcher Kah Chun et al (2005) stated the Sultan Abdul Samad Building in Kuala Lumpur, designed by British architect and establishes the influence of Western architectural styles on Malaysia's built environment. However, following independence, Malaysian architects began to develop their own architectural identity, incorporating local cultural elements alongside Western influences. Presently, Malaysian architects continue to innovate and experiment with architectural design, integrating sustainability and innovation into their work (PAM, 2023).

The professional education system for architects in Malaysia was initially modelled after the British system. The establishment of the Kuala Lumpur Technical School in 1904 marked the

beginning of formal architectural education in the country. In 1923, the British founded the Institute of Architects, Malaya, later renamed the Malaysian Institute of Architects or Pertubuhan Akitek Malaysia (PAM) in 1967. PAM serves as the primary professional organization representing Malaysian architects, offering opportunities for professional development, networking, and advocacy. Conversely, the Lembaga Arkitek Malaysia (LAM) is a statutory body established by the Malaysian government under the Architect Act 1967 (Act 117) & Rules to regulate the architectural profession. LAM plays a crucial role in upholding professional standards, overseeing competence and conduct within the architectural field. Additionally, LAM sets standards for architectural education in Malaysia and ensures the quality of architectural courses offered by educational institutions.

Understanding Architectural Entrepreneurship and Business Model

Architectural entrepreneurship is a term that refers to the strategic approach of architects towards their practice. It involves the integration of business and design principles to create innovative solutions for clients. The term "architectural practice" was the precursor to this concept, but it focused more on the technical aspects of designing and constructing buildings. With architectural entrepreneurship, architects are encouraged to think beyond the traditional boundaries of their profession and explore new opportunities for growth and innovation. This approach is essential for architects to remain relevant in today's fast-paced business environment. Richardson (2011) emphasize its importance, incorporating entrepreneurship into architecture can greatly improve architects' performance in their usual work and open up new ways to creatively tackle societal issues. According to Mukhopadhyay and Mukhopadhyay (2022a) entrepreneurial architecture involves the integration of various components within a firm, including strategies, leadership, culture, structures, and systems, to foster innovation and entrepreneurship

The term “architectural practice” refers to the technical aspects of designing and constructing buildings. It involves the application of architectural principles and knowledge to create functional and aesthetically pleasing structures. Architects are responsible for designing buildings that meet the needs of their clients, comply with building codes and regulations, and are safe for occupants. Therefore, Architectural practice encompasses firms or organizations involved in the architectural profession, offering architectural services. According to Winch and Schneider (1993), architectural practices are recognized as a distinctive type of organization, often classified as knowledge-based entities. The term "distinctive type" implies that architectural practices possess unique attributes that differentiate them from other organizational forms. Within the architectural context, knowledge-based organizations combine elements of service, professionalism, and creativity. Winch and Schneider underscore the reliance on staff expertise as a central aspect of these organizations, highlighting architects as the primary resource utilized to deliver services and remain competitive in the industry.

These knowledge-based organizations employ strategic management techniques, focusing on contextual understanding, practice positioning, and determining scope. The study emphasizes the importance of strategizing architectural practice by recognizing the value chain within the architectural context, which is often more segmented rather than centered around individual construction projects. Positioning practices involves a combination of working methods and values, shaping the identity and character of architectural firms. This

dual perspective emphasizes both practical considerations and philosophical aspects that contribute to the overall essence of architectural practice. Decisions regarding scope by narrowing or specializing in specific building types to establish a reputation.

The term “architectural management”, on the other hand, refers to the strategic and operational aspects of running an architectural practice. It involves managing resources, such as staff, finances, and time, to ensure that projects are completed on time, within budget, and to the satisfaction of clients. Architectural management also includes marketing and business development activities to attract new clients and maintain existing ones. The study conducted by Winch & Schneider (1993) focused solely on the operational aspects of architectural firms, particularly regarding the staffing of such firms and the delivery of design projects. However, it did not explore into the business aspects of architectural practice. Looking back, the term "Architectural Management" (AM) was first introduced by Brunton et al (1964) in their book "Management Applied to Architectural Practice". According to Brunton et al., AM comprises two main components: office or practice management and project management. Office management provides an overarching framework for initiating, overseeing, and completing various projects, while project management focuses on the management of individual projects. Although both components share similar objectives, their techniques differ and only intersect at certain points.

In 2011, Emmitt et al. revisited the concept of Architectural Management and shared their findings during the CIB-W096 Conference held in Vienna. Consequently, they refined the definition of Architectural Management (AM) as the strategic oversight of architectural practices, ensuring seamless integration between managing the business operations of the office and overseeing individual projects. This approach aims to design and deliver optimal value to all stakeholders within society. The concept of Architectural Management (AM) has been further explored in the theses by (Alharbi, 2013; Hussain, 2022). Upon comparison with the term Architectural Practice and Management, both phrases exhibit similar meanings. However, Architectural Practice & Management offers a simpler and more direct interpretation.

The definition of Architectural Practice was derived using AI chatbots, specifically ChatGPT 3.5. While AI chatbots may not be consistently reliable sources of data, they were utilized in this context to explore various definitions. Unlike traditional learning methods facilitated by human professors, AI algorithms offer a personalized learning experience (Donthu & Gustafsson, 2020). According to ChatGPT 3.5, Architectural Practice encompasses the creative and technical aspects of designing and constructing structures, from conceptualizing designs to overseeing construction processes. However, this definition does not explicitly mention management activities. Therefore, an alternative definition obtained from ChatGPT 3.5 integrates both the creative aspects of architectural design and the business operations of running an architectural firm. This comprehensive definition encompasses not only the design and construction processes but also the day-to-day management and organizational aspects of architectural practice.

Architectural entrepreneurship is a newer concept that emphasizes the integration of business and design principles to create innovative solutions for clients. It involves the development of new business models, the identification of new market opportunities, and

the creation of solutions that meet the needs of clients and stakeholders. Architectural entrepreneurship is essential for architects to remain relevant in today's fast-paced business environment and to adapt to technological advancements, shifting client preferences, and changing market conditions. The Porter Model, created in 1980, stands as one of the most intricate frameworks for grasping an organization's unique strengths or competitive edge. Originally tailored for manufacturing industries, its generic strategies may not be directly applicable to professional practice. However, the model's primary dimension focuses on project complexity, gauging the intricacy of a project based on factors such as detailed specifications, project scale, work speed, and client-specific requests. Additionally, the second dimension assesses quality preferences, considering whether clients prioritize the idea or the execution when evaluating quality (Porter, 1980).

Higgins' report in 1991 explored into four strategic management options for effective specialization within the architectural field. These options include maintaining focus as an architectural practice while expanding services, branching out horizontally into other building disciplines, expanding vertically into development or construction, and diversifying beyond construction into areas like design. However, a change in strategy could potentially necessitate alterations to the staff composition (Winch & Schneider, 1993).

Strategic entrepreneurship, a contemporary management concept, emerges from the fusion of entrepreneurial principles with strategic management (Gancarczyk, 2018). Within architecture, entrepreneurship plays a vital role in broadening architects' scope by introducing solutions or products, influencing industry trends, and expanding their impact on culture, environment, and society (Sung, 2021). Entrepreneurship serves as a catalyst for innovation within large firms, and integrating entrepreneurial strategies into architectural frameworks can effectively enhance innovation output (Arshi & Burns, 2018). Therefore, the concept of architectural entrepreneurship is introduced alongside architectural management, which involves strategizing business operations and fostering innovation.

The business model is an essential component of architectural entrepreneurship, as it enables architects to create innovative solutions that meet the needs of clients. The business model for architecture refers to the way in which an architectural practice generates revenue and creates value for its clients. Architects are proficient at recognizing and seizing opportunities, as well as assembling a range of resources to produce value through architectural projects (Richardson, 2011). It involves identifying the target market, developing a value proposition, and designing a revenue model that is sustainable and profitable.

Bondare et al (2017) conducted a critical examination of the business challenges within the architectural industry, highlighting the primary issue as a deficiency in entrepreneurial, business, and management skills. These skills encompass the capacity to strategize and enhance business operations, formulate business plans, project financial forecasts, articulate business proposals, and foster collaborations and partnerships with other entities. The absence of entrepreneurial proficiency hinders architects from pursuing investments. Thus, there is a pressing need to explore and embrace architectural business models that enable architects to grasp and implement more flexible and sustainable business approaches. Chesbrough (2010) proposed that architectural firms frequently integrate components from various business models or develop hybrid strategies tailored to their individual

circumstances and client requirements. The research observed that the selection of a business model may hinge on factors such as the firm's scale, specialization, target clientele, project categories, and regional conventions.

Osterwalder et al (2011) introduced the Business Model Canvas in their book titled "Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers." Prior to this, Osterwalder and Pigneur (2002) had already presented a business model framework aimed at providing companies with a better understanding of their business. This framework consists of elements such as Value Proposition, Client Segments, Revenue Streams, Distribution Channels, Customer Relationships, Key Activities, Key Resources, Partner Network, and Cost Structure. Chesbrough (2010), citing his colleague Richard Rosenbloom, proposed that business models serve specific functions. To relate this to the study, the functions of the business model are compared with the elements from the Business Model Canvas in Table 1. From the comparison, it shows that Business Model Canvas covers Richard Rosenbloom Business model functions.

Table 1
Comparison Among Business Model Elements

No	Richard Rosenbloom Business model functions	Osterwalder & Pigneur Business Model Canvas Elements
1	Articulate the value proposition. i.e. The value created for users by an offering based on technology.	Value proposition
2	Identifies a market segment and specify the revenue generation mechanism. i.e. Users to whom technology is useful and for what purpose.	Client segments
3	Defines the structure of the value chain required to create and distribute the offering and complementary assets needed to support position in the chain.	Client relationship, distribution channel
4	Details the revenue mechanism(s) by which the firm will be paid for the offering.	Revenue flows
5	Estimates the cost structure and profit potential. i.e. Given value proposition and value chain structure.	Cost structure
6	Describe the position of the firm within the value network linking suppliers and customers. i.e. Included identifying potential complementors and competitors	Partner Network
7	Formulate the competitive strategy by which the innovating firm will gain and hold advantage over rivals.	Key activities, key resources

Osterwalder & Pigneur (2002) conducted an extensive examination of the value proposition within the business model, identifying it as the foremost priority for achieving successful business performance. The value proposition encompasses all factors of what a firm provides to its customers, extending beyond products and services to encompass how the firm

differentiates itself from competitors. This significance of value proposition in a business model is shown in Figure 2.

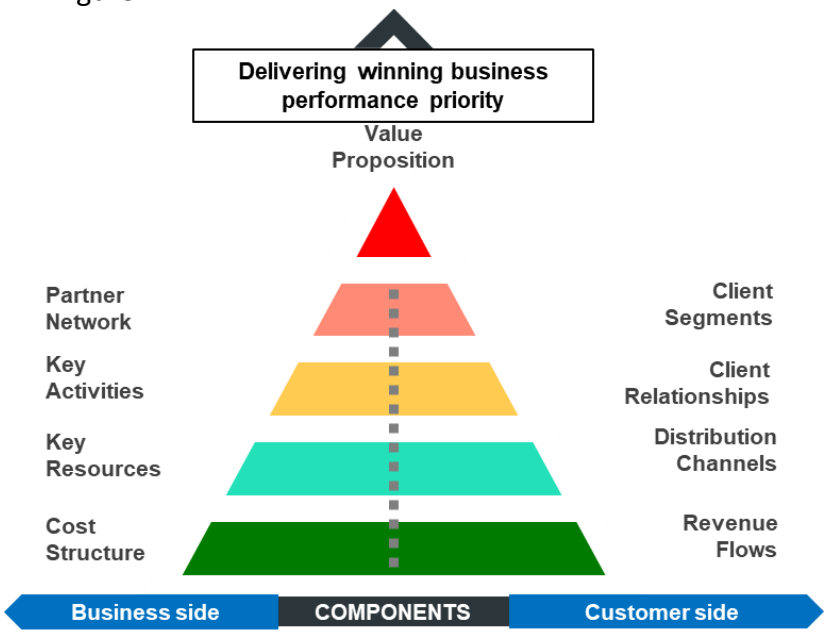


Figure 2 The Hierarchy of Importance Among Business Model Components (The researcher)

In addition to the research by Osterwalder and Pigneur (2002), Bos-De Vos et al. (2016) further elaborate on the concept of the Value Proposition by introducing Value Creation and Value Capture, specifically tailored for architectural firms. This adaptation aims to facilitate the provision of services for a wide range of diverse and unique projects, all of which are characterized by significant levels of uncertainty. Bos-De Vos et al (2014) emphasize that architectural firms must swiftly adapt to maintain competitiveness considering notable shifts in the architecture, engineering, and construction industry. The Blue Ocean Strategy, as introduced by Chan and Mauborgne (2005), advocates for Value Innovation in Blue Oceans, signifying new and uncontested market spaces, as opposed to the Red Ocean, which represents existing industries with intense competition. This study examines the strategic actions taken by companies to achieve sustained high performance. The fundamental differences between Blue Ocean Strategies are outlined in Figure 3.

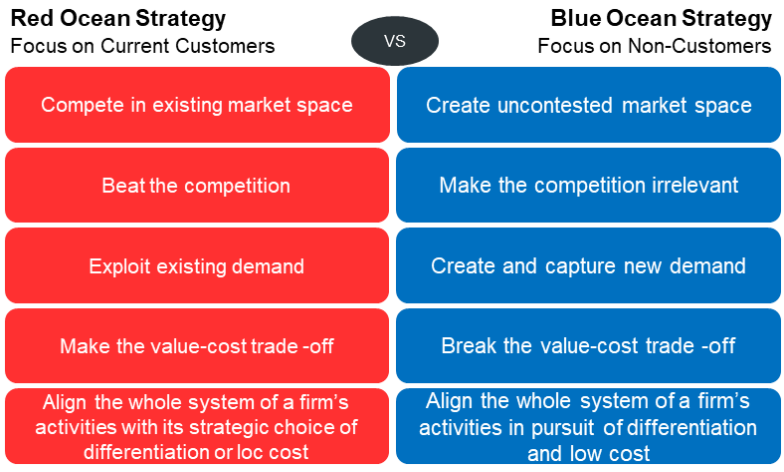


Figure 3 The Fundamental Differences of Blue Ocean Strategy (Chan & Mauborgne, 2005)

Value innovation occurs when a company's initiatives result in improvements to both its cost structure and the value proposition offered to buyers. The concept of creating blue oceans entails a dual focus on cost reduction and value enhancement for buyers, as depicted in Figure 4. This strategic approach aims to differentiate the company's offerings from existing competitors while simultaneously appealing to new market segments. By effectively implementing value innovation, companies can carve out unique market spaces and achieve sustainable competitive advantage in their industries.

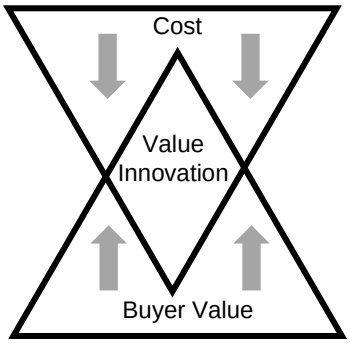


Figure 4 The Value Innovation: The Simultaneous pursuit of Differentiation and Low Cost (Chan & Mauborgne, 2005)

Synthesizing the collective research of scholars on values within the business model has opened numerous opportunities to develop adaptable business models for architectural firms. These values encompass the value proposition, value creation, value capture, and value innovation, providing a comprehensive framework for generating insights and guiding strategic decisions within the industry. By leveraging these values, architectural firms can effectively navigate changing market dynamics and sustain competitive advantage in their respective markets. Figure 5 showing the theoretical framework of architectural entrepreneurship and business model.

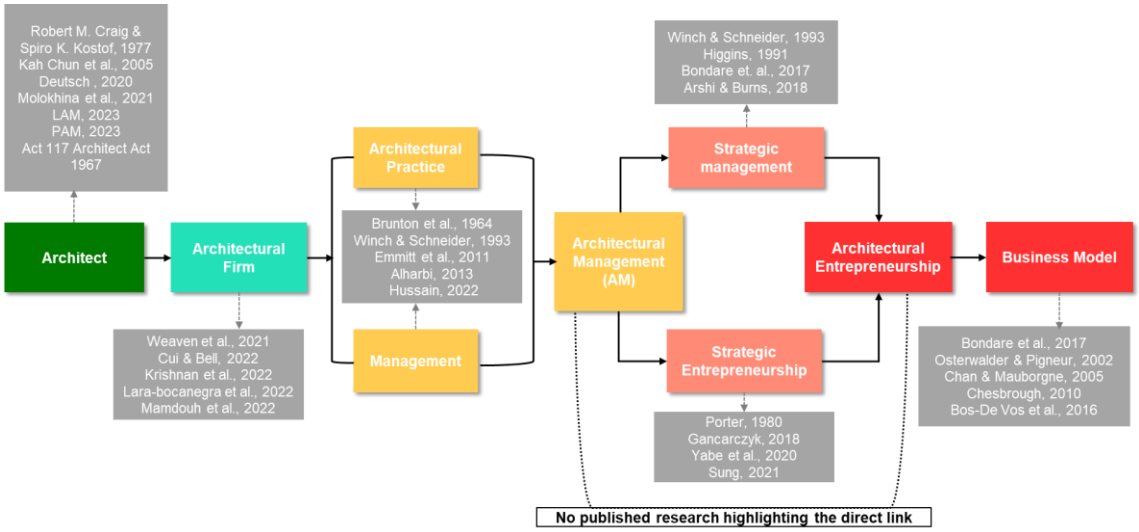


Figure 5 Theoretical framework of Architectural Entrepreneurship and Business Model

Effects of Covid on Business

The COVID-19 pandemic has severely impacted various businesses worldwide. In 2020, Donthu and Gustafsson highlighted the importance of preparing to mitigate the effects of such dangerous viruses on society, acknowledging the inevitability of their emergence. The authors addressed several intriguing research topics, including the examination of consumer behavior and market trends during the pandemic, prediction of long-term effects, and the invitation of scholars from diverse fields of business and management to contribute brief special issues on various aspects of the pandemic's impact.

Table 2

Various Aspects Effects of Covid-19 pandemic on Business

No.	Author	Title	Content Highlights
1	Jagdish Sheth	Impact of COVID-19 on Consumer Behavior: Will the Old Habits Return or Die?	Embracement of digital technology, Work-life boundaries, dramatic change in consumers' behaviour because of sophisticated technology.
2	Arch G.Woodside	Interventions as Experiments: Connecting the Dots in Forecasting and Overcoming Pandemics, Global Warming, Corruption, Civil Rights Violations, Misogyny, Income Inequality, and Guns	Examining deaths as a natural experiment, Intervention test on Covid-19 vaccines
3	Joel B. Carnevale, Isabella Hatak	Employee Adjustment and Well-Being in the Era of COVID-19: Implications for Human Resource Management	Employee environment influence
4	Hongwei He, Lloyd C. Harris	The Impact of Covid-19 Pandemic on Corporate Social Responsibility and Marketing Philosophy	Large corporation do corporate social responsibility (CSR)
5	Professors T. Y. Leung, Piyush Sharma, Pattarin Adithipyangkul, Peter Hosie	Gender Diversity and Public Health Outcomes: The COVID-19 Experience	Woman in leadership, Woman in all stages of public health management.
6	Piyush Sharma, T. Y. Leung, Russel P. J. Kingshott, Nebojsa S. Davcik,, Silvio Cardinali.	Managing Uncertainty during a Global Pandemic: An International Business Perspective	Importance of international business research

7	Eleonora Pantano, Gabriele Pizzi, Daniele Scarpi, and Charles Dennis.	Competing During a Pandemic? Retailers Ups and Downs During the COVID-19 Outbreak,	Identify, optimize, and re-access existing technologies and business models. All retailers specially grocery stores are revisiting their business continuity plans, Retailers need to understand their financial needs, control panic buying
8	Fabian Eggers'	Masters of Disasters? Challenges and Opportunities for SMEs in Times of Crisis,	Combination of entrepreneurial orientation and market orientation can lead to lean and flexible marketing efforts
9	Sandeep Krishnamurthy	The Future of Business Education: A Commentary in the Shadow of the Covid-19 Pandemic.	The algorithm as professor, The university as a service, The University as assessment powerhouse, Learning personalization to support diversity, Problem solving through ethical inquiry.
10	Colleen P. Kirk Laura S. Rifkin.	Consumer Reacting, Coping and cAdapting Behaviors in the COVID-19 Pandemic,	Excuse for increased racial and anti-immigrant biases
11	Yonggui Wang, Aoran Hong, Xia Li, Jia Gao	How Firms in China Innovate in COVID-19 Crisis? An Exploratory Study of Marketing Innovation Strategies,	Collective strategy for highly affected by developing new business by collaborating with other firms during the crisis, Proactive strategy for less affected (online business) by developing new business to meet special demand, Partnership strategy for less affected by developing new offerings through collaboration with other firms.
12	Professors Amalesh Sharma, Anirban Adhikary, Sourav Bikash Borah	Covid-19 Impact on Supply Chain Decisions: Strategic Insights for NASDAQ 100 Firms using Twitter Data."	To deal with the challenges brought on by unprecedented times, the leaders of organizations must reimagine and redesign the supply chain, to rely on technology
13	Marianna Sigala	Tourism and COVID-19: Impacts and Implications for Advancing and Resetting Industry and Research	Impart some ideas from different research fields that will allow tourism to grow and evolve

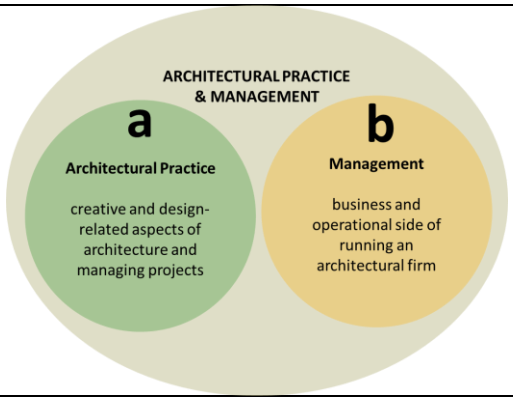
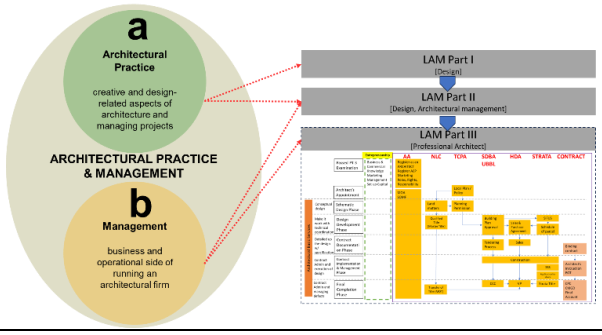
The COVID-19 pandemic has had far-reaching impacts on businesses, as evidenced by the discussion of 13 articles. These articles cover various topics such as embracing digital technology, testing COVID-19 vaccines, adjusting employee well-being, expanding corporate social responsibility (CSR), diversifying women's leadership, researching international

business, reevaluating existing technology business models, adopting flexible marketing strategies, assessing future business education, understanding consumer behavior (especially among immigrants), developing new businesses through collaboration, redesigning technology-dependent supply chains, and reimagining the tourism industry. From this extensive content, it is evident that the business model for architectural entrepreneurship needs to prioritize adaptability to address any potential challenges that may arise.

Conceptual Framework

The conceptual framework involves four key phases. These phases developed from a thorough exploration of literature, particularly focusing on how firms can adapt their business models during changing market conditions following a crisis. The initial phase as shown in table 3 focuses on understanding the differences between architectural practice and management, defining their roles without overlap. Additionally, it aims to identify how architectural practice relates to the industry in Malaysia and highlighting its relevance to the study.

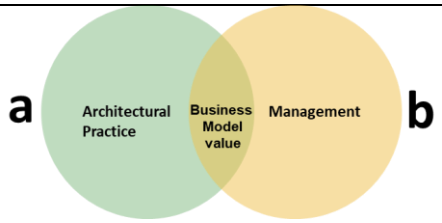
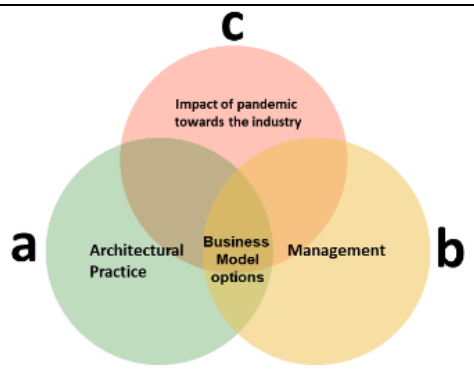
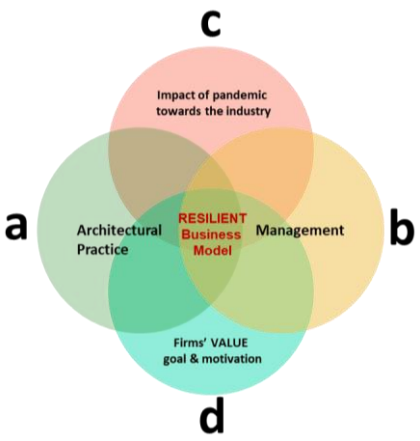
Table 3
Architectural Entrepreneurship conceptual development 1

Id	Description of developments	Diagrams
1	Identification	
a	Architectural practice and management involve different field of work without any overlap	
b	The relationship with industrial context of practicing as architects	

Next, in the second phase as shown in table 4, explore into articulating the fundamental elements of architectural practice, management, the pandemic's impact on the industry, and the values, goals, and motivations of firms. This involves bringing together the core aspects of architectural practice and management to establish the foundation for creating business value. Integrate the elements of architectural practice and management with the effects of the pandemic, exploring how they interact and influence the development of various business

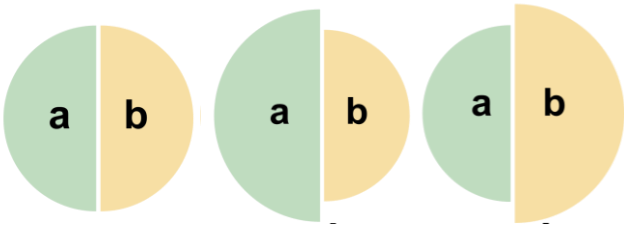
model options. Furthermore, merge these elements with the values, goals, and motivations of firms to identify common points that lead to the formation of resilient business models.

Table 4
Architectural Entrepreneurship conceptual development 2

Id	Description of developments	Diagrams
2	Articulation of Elements	
a	Bringing together elements from architectural practice and management, the integration produces business model value	
b	By combining aspects of architectural practice and management, along with impact of pandemic, we generate a variety of business model options	
c	By combining elements from architectural practice and management, impact of pandemic and firms' value goal & motivation forming a resilient business model	

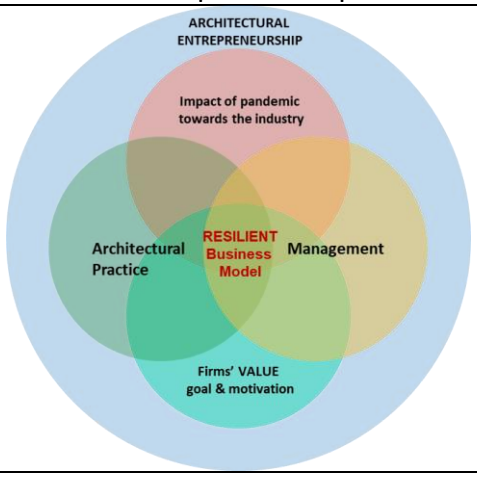
The third phase as shown in table 5, involves assessing the contributions of architectural practice and management elements to creating value in business models. This evaluation aims to determine whether these elements contribute equally or if one is more significant than the other, providing valuable insights.

Table 5
Architectural Entrepreneurship conceptual development 3

Id	Description of developments	Diagrams
3	Who contributes most to creating value in the business model?	
a	a contribute equal with b ; a contribute more than b; a contribute less than b	

Finally, in the last phase as shown in table 6 of developing the conceptual model of "Architectural Entrepreneurship," the focus is on understanding how each element interacts and contributes to resilient business models. This phase emphasizes the importance of each component and their combined impact on fostering resilience in architectural firms.

Table 6
Architectural Entrepreneurship conceptual development 4

Id	Description of developments	Diagrams
4	Conceptual Model of Architectural Entrepreneurship	
a	Architectural Entrepreneurship Conceptual Model is emphasizing the interconnectedness and significance of each element.	

Conclusion

A conceptual model of architectural entrepreneurship may investigate the characteristics and value to achieve resilient business model. Firms that faced the challenges, such as global pandemic and leads to economic downturn may suggest the importance of adaptability, creativity, and strategic thinking for the architects. Searching the values in architecture business model could suggest different methods to be resilient. Researcher Mukhopadhyay and Mukhopadhyay (2022b) emphasized that entrepreneurial architecture involves generating value by using different resources together to seize opportunities. By prioritizing innovation and harnessing the transformative capabilities of digital technologies, architectural enterprises can emerge more robust, resilient, and better prepared to succeed in the aftermath of the pandemic. Not to eliminate the essential, it is crucial to possess

strategic entrepreneurship knowledge to provide firms with effective approaches for crafting resilient business models during uncertain circumstances. Subsequently practicing architecture in Malaysia is already taking much effort and time, not to forget the responsibility and liability taken after being called a professional. Architectural entrepreneurship may explore the potential of entrepreneurship as a more integrated component of architectural education and practice.

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