



MODELLING DIGITAL MARKETPLACE FOR SME'S IN CONSTRUCTION INDUSTRY

Hanin Fitria^{1*}, Cikita Berlian Hakim², Muadzah³

^{1,2,3}Industrial Engineering, Science Technology & Mathematics Faculty, Kudus Muhammadiyah University, Indonesia

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ABSTRACT

Small and Medium Enterprises (SMEs) play a crucial role in the construction industry in Indonesia, with construction SMEs accounting for nearly 90% of the total construction industry. However, construction SMEs face various challenges, such as limited resources, lack of access to projects, inefficient procurement processes, and human resource issues. This research aims to model a digital marketplace specifically designed to address these challenges and develop the business models of construction SMEs. By employing the Business Model Canvas (BMC) approach, this research maps nine key elements in designing the business model of a digital marketplace for construction SMEs, including customer segments, value propositions, distribution channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure. The results indicate that a digital marketplace can serve as a solution for construction SMEs to improve project access, process efficiency, and collaboration with strategic partners. Through the digital marketplace, construction SMEs can promote their products and services, connect with consumers and project partners, and enhance their capacities and competencies. This model offers a roadmap for developers and policymakers in creating platforms that drive competitiveness, efficiency, and growth of construction SMEs in the era of industrial digitalization.

*Corresponding Author

Name

E-mail: haninfritria@umkudus.ac.id

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INTRODUCTION

Based on the data of construction industries in Indonesia, it can be seen that the construction industry is divided into several business scales. There are small, medium, large, and non-qualified scales. It can also be seen that the ratio of the number of small and medium-scale construction industries is higher compared to the large construction industry. In terms of business scale, the majority of Indonesian construction companies are small-scale, at 75.57 percent with 120,384 businesses, and medium-scale at 14.30 percent with 22,777 companies. Meanwhile, the smallest is Large Companies with only 1,541 companies (BPS, 2021). The comparison of the number of construction industries by business scale can be seen in Figure 1.

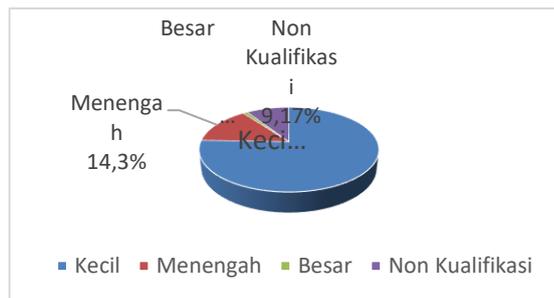


Figure 1. Number of Construction Industries by Business Scale (BPS, 2021)

Small and medium-scale construction industries (SME construction) appear to rank the highest throughout Indonesia compared to large construction industries. The resulting ratio is quite significant. In fact, the number of small construction industries is almost 80%. So it can be categorized that the SME construction industry has the largest number throughout Indonesia (BPS, 2021b). The large number of SME construction turns out to have certain problems, namely the absence of regulation among SME construction members. This resulted in the lack of classification between SME construction aggregates. The research results show that in general, Indonesian contractors are still focused on competition to obtain service markets provided by budgets through the state budget (APBN) or regional budgets (APBD), where the total does not exceed 45% of the market [1].

In this era, various contractors with low sizes are afraid of behavior that makes it difficult for SMEs to exist in tendering or auction activities in order to be included in a large project [2]. The auction mechanism often encounters difficulties faced by SME and has various obstacles during the process. One of the many indicators that influence corruption is that the government often labels large package costs with a range above IDR 2,500,000,000, making the mobility of SMEs at the small and medium strata lower than others in participating in the auction mechanism, technology and human resources used in relation to this [3].

Human resource issues are also an important issue in the SME construction industry. It turns out that there is a finding that human resource practices affect employee service performance. For example, data collected from 1,525 full-time hotel employees and line managers show that human resource attributions, trust in the organization, and affective commitment serially mediate the relationship between high-performance service-oriented human resource practices and employee service performance. In addition, the results confirm the moderating role of person-supervisor fit and person-vocation fit in the relationship between inclusion and turnover intention [4].

The construction industry, such as the SME construction industry, is referred to as a business that has certain unique characteristics, where it has constraints that must be met. The constraints in the construction industry include economic constraints, legal constraints, environmental constraints, technical constraints, and social constraints [5]. In addition, the construction industry also involves many parties with diverse disciplines and unskilled workers (non-skill). The impact of construction industry constraints on construction projects is suggested to develop awareness to manage and control constraints in the construction work environment to achieve performance in the construction work environment [6].

The performance of a large industry or SMEs is currently being studied by various

researchers[7]. Currently, many researchers focus on studying entrepreneurial behavior and how companies form the basis for entrepreneurial action and strategic decisions to achieve high performance [8]. Performance assessment itself is divided into two, based on financial and non-financial [9]. Non-financial performance is a company's performance that cannot be measured in monetary value, such as brand reputation, customer satisfaction, organizational performance, and innovation activities [10]. Financial performance is usually associated with the company's short-term survival, while non-financial performance tends to be more related to long-term sustainable growth[7]. The performance assessment of SME construction is more suitable to apply to non-financial performance assessments, such as innovation activities.

Innovation activities can be in the form of innovation in the SME construction business model. As it is known that the SME construction is one of the most globally fragmented sectors due to the high level of specialization among its professions, businesses and processes, and most construction projects are carried out only once involving relationships with many parties [11]. The performance assessment of the innovation activities of the SME construction business model is needed. SME construction consists of various types or aggregates, such as lightweight steel roof SME construction, concrete brick SME construction, and others. However, this assessment can be carried out equally from all aggregations. Defects in the business model system can start from the absence of good quality data for coordinated functional modules such as compliance checks, process control, and quality assurance, and can also be considered to originate from low levels of visibility and traceability of information [12]. A marketplace for SME construction has been modeled to develop business model innovation activities. Quoted from the *alinea.id* website, President Director and CEO of PT Siemens Indonesia Prakash Chandran revealed that the industrial revolution 4.0 as supported through digitalization is a success factor for the transformation of the Indonesian industry. From his statement, it is also explained that companies need to implement digitalization, manage their business brands to be efficient and continuous, and also optimize the customer experience. In the same article, the Minister of Public Works and Public Housing (PUPR) Basuki Hadimuljono also conveyed that digitalization in the construction industry is very slow. Even though the use of digitalization is very important in an effort to increase the competitiveness of the national construction industry (Alinea.id, 2019).

The presence of a marketplace can be a new beginning in dealing with a company's business model renewal. Combined with the traditional manufacturer-retailer channel, the existence of a marketplace can change the complex business structure with a conventional exchange system between the benefits of sales expansion and the existence of cannibalistic channels (Shi et al., 2021). For example, Haier, China's best-selling home appliance manufacturer, traditionally relied on large home appliance retailers, such as Suning, to sell products to consumers. Meanwhile, both Suning and Haier launched their flagship online stores on Tmall and JD [13].

RESEARCH METHODS

The Business Model Canvas was developed by [14] and is a tool that has been used in business growth due to its ability to provide a complete picture of the business model [15]. The scope of its application includes its use in technology-based enterprises (Startups and/or Spin-offs) and in business ideas that emerge outside this framework.

Currently, the application of BMC is focused on developing the general conception of an idea, which then tries to connect with other tools that facilitate the process of continuous project improvement [16]. For example, in seeking coupling between BMC and business and other production tools, it proposes a relationship between it and Manufacturing System Design (MSD), which is defined as the system used to prepare the production system capacity to respond to changes in production size, processes, or other specifications. In this context, BMC is involved with MSD in improving the project's cost structure, seeking efficient and flexible processes that overcome market fluctuations. The application and variation of this traditional BMC model allow it to be extrapolated not only in manufacturing systems but also in any business idea or venture that focuses on reducing its cost structure

as an element and as a differentiating factor in the market.

[17] proposed its use in the SME construction sector as a tool that allows them to establish key factors for the company's business model in that sector. BMC is used to organize business strategies, especially in Low Cost Carriers (LCC) and Full Service Network Carriers (FSNC) as easily recognizable clusters in the industry; however, in the research proposal, BMC can be used to establish the main activities, resources, and relationships for clusters that fall in the middle range of this spectrum bounded by LCC and FSNC stakeholders. From the literature review, it is clear that BMC has been used as a differentiating idea generator for companies using this model. However, it is established that although it has been used in technology-based startups, its use has not been specifically carried out in the design field in the SME construction sector.

RESULTS AND DISCUSSION

According to Kuswandi and Sultan (2020), the business model canvas includes nine mapping elements consisting of customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure.

In the marketplace model for SME Construction, the mapping of the nine elements begins with understanding the user segmentation of the SME Construction marketplace application. Mapping the user segmentation of the application is important to understand consumer needs so that the developed application aligns with the target of meeting user needs. User segmentation or what can be called the customer segment includes SME Construction companies joined in the marketplace, marketing and sales of construction products, construction product consumers, and the general public.

Value Proposition of the SME Construction marketplace here has only one category, which is value due to profit. Value due to profit refers to the various potentials of SME Construction companies that have value advantages and needs in various types of construction products and projects, which become values in the development of the marketplace. Products owned by SME Construction companies can be marketed through the marketplace, and construction project needs can be met through the marketplace.

The Channel element or what could be called the distribution channel is the process by which the marketplace can be known, used, and utilized by its users. The channel illustrates how the company communicates and reaches its customer segments[18]. The channel elements utilized in the SME Construction marketplace are website promotion indexed by Google, promotion through the marketplace's social media, and promotion through partners joined in the marketplace. Offline promotion in various media, offair events, and community or user testimonials. Maintaining a good relationship between the company and its customers is very important and must be maintained so that the established cooperation remains intact as per shared goals and vision. Customer relationships in this marketplace design involve maintaining relationships with customers both offline and online[19].

Sources or revenue streams flowing into the company through the marketplace are commissions on transactions via the application, fees for joining partners, and advertising fees. Meanwhile, resources are a crucial system in an organization or company to run all business models so that the system functions properly. The resources needed by this SME Construction marketplace are human resources for application development and partners, project partners, network infrastructure and servers, and databases.

Key Activities element will illustrate the core activities in the SME Construction marketplace in making its business model run according to its vision and objectives. These activities will form the system of steps and preparations toward which the business will be developed, such as in terms of production, problem-solving, and the network used. Key Activities include connecting partnerships with SME Construction companies and construction product resellers, developing the capacity of SME Construction partners, managing the SME Construction database, developing service features, connecting distribution channels and warehousing, conducting promotions, and managing the finance system.

Key Partners in this SME Construction marketplace are strategic alliances between the

application and suppliers and application development partners so that all these aspects make the business model function. The key core partners in making this application function well are construction product manufacturers, resellers, SME Construction companies, internet and server providers, and shipping service providers.

The last element in BMC is Cost Structure. This element will explain the costs incurred in operating the SME Construction marketplace business. The costs incurred by the SME Construction marketplace are employee salaries, application development and enhancement costs, internet infrastructure and server rental, office rental investment, equipment and supplies, promotion and socialization costs, system development and maintenance costs, and company legality costs.

Table 1. Business Model Canvas

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> - Product manufacturers in construction - Resellers - SME Construction companies - Internet and server providers - Shipping service providers 	<ul style="list-style-type: none"> - Partnering with SME Construction companies - Partnering with construction product resellers - Developing the capacity of SME Construction partners - Managing the SME Construction database - Developing service features - Connecting distribution channels and warehousing - Conducting promotions - Managing partner finances 	<p>The value proposition is the diverse potential of SME Construction companies that have value advantages and needs for various types of construction products and projects, creating value in the development of the marketplace. Products owned by SME Construction companies can be marketed through the marketplace, and construction project needs can be met through the marketplace.</p>	<ul style="list-style-type: none"> - Concept of developing partnerships - Concept of developing partnerships with product resellers in construction - Meeting project needs in construction - Providing support for SME Construction development - Offering attractive promotions and discounts 	<ul style="list-style-type: none"> - SME Construction companies joined in the marketplace - Marketing and sales of construction products - Construction product consumers - General public
	Key Resources		Channels	
	<ul style="list-style-type: none"> - Human resources for application development and partnerships - Project partners - Network infrastructure, servers, and database 		<ul style="list-style-type: none"> - Website promotion indexed by Google - Promotion through marketplace social media - Promotion through partners joined in the marketplace 	

			<ul style="list-style-type: none"> - Offline promotion in various media, events, and testimonials - Maintaining good relationships with customers 	
Cost Structure		Investment Streams		
<ul style="list-style-type: none"> - Employee salaries, development and enhancement costs - Internet infrastructure and server rental costs - Office rental investment - Equipment and supplies - Promotion and socialization costs - System development and maintenance costs - Company legality costs 		<ul style="list-style-type: none"> - Commissions on application transactions - Fees for joining partners - Advertising fees 		

CONCLUSION

The business model canvas, or BMC, can be used to design a business model for a newly established or developing company. The elements within the business model canvas are interrelated and have their own target aspects. The existence of a designed business model canvas within a company serves as a guide for decision-making and the achievement of the company's vision, mission, and objectives. A business model canvas designed by considering the company's internal and external aspects serves as an alternative for the company when facing problems and challenges. All elements within the business model canvas form the core of every aspect of the company's needs.

In the SME Construction marketplace, the core element currently lies in the Key Resources element, where the management of the SME Construction marketplace prepares convenience and a sense of trust, both internally and externally, so that Santree's vision, mission, and objectives can be accepted by all participating partners, namely SME Construction companies in Indonesia. As a newly developing company, the SME Construction marketplace

requires a business model in its business management process. Advanced technology must be accompanied by strong business planning to ensure the company's vision, mission, and objectives are well-executed. The implementation of the designed business model canvas can serve as a guide for managers, directors, and all employees in making decisions about the Santree application's business processes. The business model canvas, with its nine elements, maps the focus of every aspect that will be highly functional in driving the company's business operations.

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