

Circular Economy- Based Business Model With Business Model Canvas For Keris Craftsmen In Sumenep Madura

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ARTICLE INFO

Article history :

Received:

01 September 2025

Revised:

06 Januari 2026

Accepted:

30 Januari 2026

ABSTRACT

Tourist Village Aeng Tong-Tong, Sumenep, as center the largest keris craftsman recognized by UNESCO, has potential big in business model development sustainable based circular economy. Research This aim designing and redesigning business models with approach Business Model Canvas (BMC), evaluates potential revenue stream new, and study sustainability model for keris craftsman. Using method qualitative exploratory with technique expert opinion and key informant interviews, research This compile existing BMC, design Circular Business Model Canvas (CBMC), as well as analyze eligibility income new and diversified product based waste production. Research results show that integration principle circular economy in BMC increases efficiency source power, reduce waste, and produce product derivative worth plus. Digital marketing, NFT technology and green marketing participate strengthen Power competition keris industry. Research This offer contribution to development craft- based industry culture in a way sustainable with integration draft circular economy in context local.

Keywords: Circular economy, Business Model Canvas, keris crafts, craftsmen, industry creative sustainable.

INTRODUCTION

The creative industry has become a sector that has received significant attention in national development policies. This is evidenced by the inclusion of creative industry development in one of the Presidential and Vice Presidential Asta Cita (Asta Cita) for the past five years. Although the main focus of creative industry development tends to be fashion, film, graphic design, and visual communication products, there is a lack of attention to cultural heritage products that have high historical and cultural value, especially keris crafts as part of traditional Indonesian culture (Tjahjadi et al., 2023) . Sumenep Regency, which is culturally recognized as the City of Keris, further strengthened its position through the inauguration of the Arya Wiraraja Keris Monument by Minister of Culture Fadli ZON in 2025 (Sumenepkab.go.id, 2025) .

The existence of the keris has become an Indonesian cultural identity, especially after being recognized by UNESCO as a cultural heritage spread across various regions such as Java, Madura, Bali, Lombok, Sumatra, Kalimantan, and Sulawesi (Nurul Hidayat et al., 2025) . Sumenep Regency has been named the region with the most keris craftsmen by UNESCO since 13 years ago. Keris has also been recognized as an Intangible Cultural Heritage in 2005. Then, Aéng Tong-Tong Village was designated as a Keris Village through the Decree of the Regent of Sumenep in 2018.

As center the largest keris industry in Indonesia, Tourism Village Aeng Tong-Tong has potential economy great creativity with around 565 masters or craftsmen active in managing keris production in general cultural and traditional (Nurfadhilah & Sri Rahayuningsih, 2021) . The total data on the most empus or keris craftsmen in Aeng Tong-tong Village can be seen in the graph below.

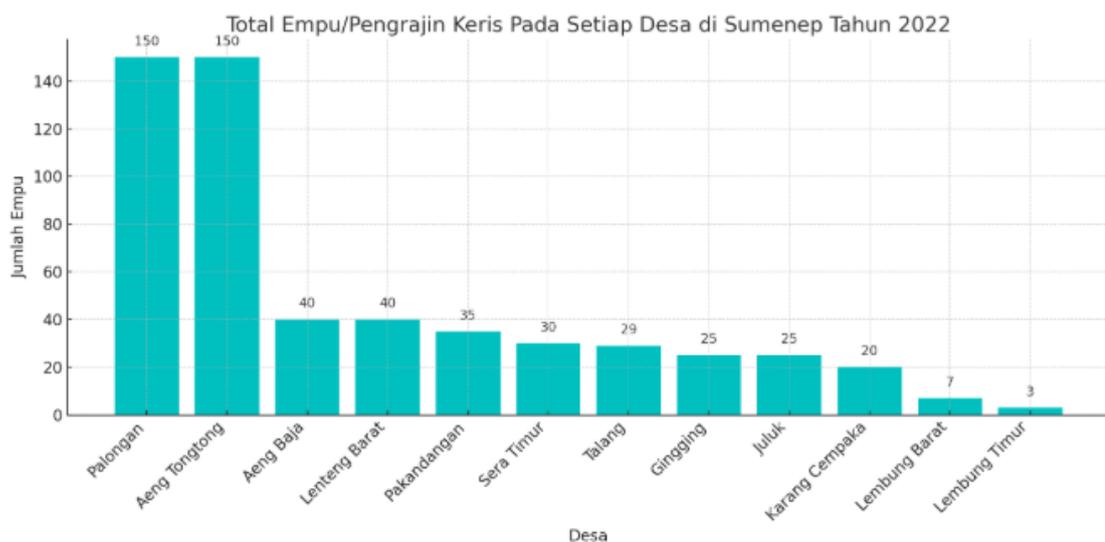


Figure 1. Total number of Empu / Keris Craftsmen in each village in the Regency Sumenep 2022

Source : Department of Tourism, Culture, Youth and Sports

In the production process, keris are made through various stages, starting from the idea or concept, the formation of the blade by a blacksmith, the creation of the pamor, and the installation of the deder and warangka. Keris production in Sumenep is not carried out in bulk, but based on collector orders. The excellence of the Aeng Tongtong keris lies in the dhapur (shape), tangguh (estimated year of manufacture), blade, and pamor, which determine its selling price, which ranges from IDR 200,000 to more than IDR 1.5 million (Ahmed David Anugerah et al., 2023).

Although the keris industry in the Aeng Tong-tong Sumenep Tourism Village has great potential in the culture-based creative industry, the craftsmen face major problems that are an urgent need for research. This includes suboptimal business management, particularly capital management and a lack of digital marketing (Tjahjadi et al., 2023). Furthermore, keris production waste, such as metal scraps and sawdust from making keris handles, is often poorly managed, potentially polluting the environment (Hidayat et al., 2023).

The circular economy approach as system economy circular focused on optimization use material raw materials, components, and products to minimize waste that ends up in landfills disposal end, so that give mark sustainable addition for production and consumption processes (Bappenas, 2025). Implementation draft This expected can speed up growth economy more green significant compared to with scenario conventional business as usual (Bappenas, 2025). In the sector keris crafts in the tourist village Aeng Tong-Tong, waste production in the form of remainder metal own potential big For recycled repeat become material standard new, whereas waste wood from manufacturing keris handle can processed become product derivative worth plus like souvenirs, jewelry, and miniature keris that use material recycling repeat or packaging friendly environment. Processing waste in a way sustainable with eco-friendly technology also plays a role important in reduce emission carbon during the production process, which is step crucial in reach sustainability environment (Hafidhah et al., 2023).

On the other hand, digitalization and marketing strategies sustainable the more become need For increase Power competition keris industry, in particular through utilization of e-commerce platforms based on circular economy, NFT and blockchain technology as certification authenticity products, as well as implementation of green marketing that is capable interesting segment increasingly consumers care to issue environment (Najiatun et al., 2025). In context business model development, Business Model Canvas (BMC) is tool effective conceptual For designing or redesigning responsive business models to market needs and challenges environment (Yuni K et al., 2025). BMC has nine fundamental elements, starting from proposition mark until market segments and channels distribution, which can become a basis in identify opportunities and obstacles application of circular economy in business keris crafts (Arifah et al., 2021).

Although potential and framework conceptual has clearly, there is a significant research gap related implementation of the circular economy business model specifically on the keris industry in Aeng Tong-Tong Village. So far, the orientation business keris

craftsmen still dominated by a profit-oriented approach without consider impact environment and sustainability term long (Nur Diana Khalida, 2024) . This matter cause need urge For designing a business model that is not only profit - oriented financial, but also harmonization environment and welfare generation upcoming (Rahman et al., 2025) . With Thus, the novelty of the research This lies in integration circular economy concept with Business Model Canvas designed special For industry keris crafts , including innovation in management waste, digitalization marketing, and development of sustainable revenue streams as well as friendly environmen, answer challenge business developing no rubbish and zero waste moment This (Fatoni & Hafidhah, 2022) .

Based on background behind said, research This study aims to design and redesign a circular economy- based business model using the Business Model Canvas approach for keris craftsmen in the Aeng Tong-Tong Tourism Village, Sumenep. Furthermore, this study also aims to evaluate the feasibility of potential new revenue streams generated from the redesigned business model. Furthermore, this study seeks to analyze the sustainability and scalability of the implementation of the developed circular economy business model, in order to provide a real contribution to the development of an environmentally friendly and competitive keris craft industry at the local and national levels.

THEORETICAL FRAMEWORK AND EMPIRICAL STUDIES

Circular Economy Concept in the Creative Industry

Circular economy is something system an economy that focuses on utilization source Power in a way efficient and sustainable through reduce, reuse, and recycle principles for minimize waste (Bappenas, 2025) . Approach This No only reduce waste, but also encourages innovation products and processes with change remainder production become material standard or product worth plus (Hafidhah et al., 2023) . In the context industry creative and craft, circular economy allows craftsmen For manage waste metal and wood from production become product derivative like souvenirs, jewelry, or packaging friendly environment that can increase mark economy at a time guard sustainability environment (Fatoni & Hafidhah, 2022) .

Business Model Canvas as a Business Model Design Tool

Business Model Canvas (BMC) is tool management strategic use For design, design, and develop business models in a way systematic through nine block building main, namely proposition value, segment customers, channels distribution , relationship customers, sources income, sources Power key, activity key, partner keys, and structures cost (Nadine Zahira et al., 2024) . BMC is very effective used in business model development sustainable Because capable map various element business in a way integrated and adaptable with market needs and aspects sustainability (Yuni K et al., 2025) .

Integration of Circular Economy in Business Model Canvas

Research conducted by (Braun et al., 2021) explain that merger the principle of circular economy with BMC can generate a business model that is not only friendly environment but also efficient in a way costs and increase mark plus product. Business model This allows company or craftsmen utilise waste production as source material standard new, extend cycle life products, and reduce dependence on materials standard external (Geissdoerfer et al., 2020) . This relevant For keris craftsmen in the tourist village Aeng Tong-Tong faced it challenge management waste metal and wood (Setiawan, 2019) .

Various studies empirical previously show that integration draft circular economy in the business model can increase efficiency source power, reduce waste, as well as create mark economy new from product derivatives. Research by (Braun et al., 2021) emphasize that Business Model Canvas (BMC) is effective tool in map elements business in a way systematic, especially when combined with approach sustainability such as circular economy. Research others conducted by (Sabani et al., 2024) explain that management waste craft based wood and metal can changed become product worth plus like eco - friendly souvenirs and accessories environment. Meanwhile that, research by (Yuni K et al., 2025) highlight importance digital transformation, including e-commerce usage and certification product NFT based in increase product market trust and reach craft culture.

Study This based on thought that sustainability industry keris crafts in the tourist village Aeng Tong-Tong does not only depends on preservation mark culture and wisdom local, but also on the ability business model adaptation to modern challenges, such as management waste, efficiency production , and digital transformation (Hidayat et al., 2024) . The circular economy offers approach strategic that focuses on utilization return waste production, efficiency use source power, and creation mark plus through diversification product friendly descendants environment. On the other hand, the Business Model Canvas (BMC) is tool conceptually capable map elements main business in a way systematic, starting from market segment, proposition value, channel distribution, up to structure costs and flows income. With integrate circular economy principles in BMC, a Circular Business Model Canvas (CBMC) is formed which can used For designing re- model business keris craftsmen to be more sustainability oriented. Through approach this , craftsman expected capable identify opportunity new , manage waste in a way productive, as well as utilise digital technology for expand the market and strengthen position his business in the middle competition industry continuous creativity develop (Aula et al., 2018) .

Based on framework theories and studies empirically above, then can formulated hypothesis that integration the concept of circular economy in the business model keris craftsmen through the Business Model Canvas approach will increase sustainability business as well as open opportunity income new friendly environment and value add. In more specific, research This test a number of hypothesis derivatives, namely that the application of the Circular Business Model Canvas (CBMC) is capable identify potential waste production as material standard product derivative worth economical, increasing efficiency

costs and utilization source power, as well as support digitalization strategy marketing through e-commerce platforms and NFT technology. In addition, the development product derivative based recycling repeat allegedly own influence positive to Power competitiveness and sustainability term long keris industry in Aeng Tong-Tong Village, both at the village level local and national.

RESEARCH METHODS

The objects of this study were keris craftsmen in the Aeng Tong-tong Tourism Village, Sumenep on year 2025/2026. This research consists of four stages of data collection as well as data analysis and interpretation, namely the existing BMC design stage, VPC identification and design. CBMC, design CBMC optimal And identification diversification of keris craft products and analysis of the feasibility of new businesses in the creative industry of keris craftsmen in the Aeng Tong-tong Sumenep Tourism Village (Hujairi et al., 2024) .

The data types in this study include primary data obtained from in-depth interviews with main and additional questions, as well as secondary data as a complement (Tsawaba et al., 2024) . Data were analyzed qualitatively using the Miles and Huberman model which consists of three main stages: data reduction to simplify and focus the raw data, data presentation in narrative or visual form such as tables and graphs, and drawing conclusions based on valid data and not researcher preferences (Geissdoerfer et al., 2020) . This analysis process was assisted by Nvivo software to be more systematic and efficient. To ensure data validity, this study used five criteria: credibility to ensure data can be trusted, transferability to assess the application of results to other contexts, dependability to evaluate the consistency of results between researchers, confirmability in the form of openness in the research process, and authenticity to maintain the integrity and authenticity of the collected data (Rijali, 2018) .

RESULTS AND DISCUSSIONS

The informants in this study were the Head of the keris craftsman community who is also the manager of the Aeng Tong-tong Tourism Village, the Head of Aeng Tong-tong Village who is also a keris master, the manager of the keris gallery, and the empu or keris craftsmen with a total of 4 informants. After the interview results were collected, the researcher coded the keywords from each sentence conveyed by each informant. The resulting research analysis used Nvivo 14 software.

There are five forms of data visualization that researchers apply in explaining the results of data processed using Nvivo 14 software, including Hierarchy Chart, Project Map or Media Topic Comparison, Mind Map, Word Cloud and World Frequency Results.

Hierarchy Chart Visualization

software tool which has the function to view and describe all the information sources that have been determined through diagrams, as in Figure 1 below.

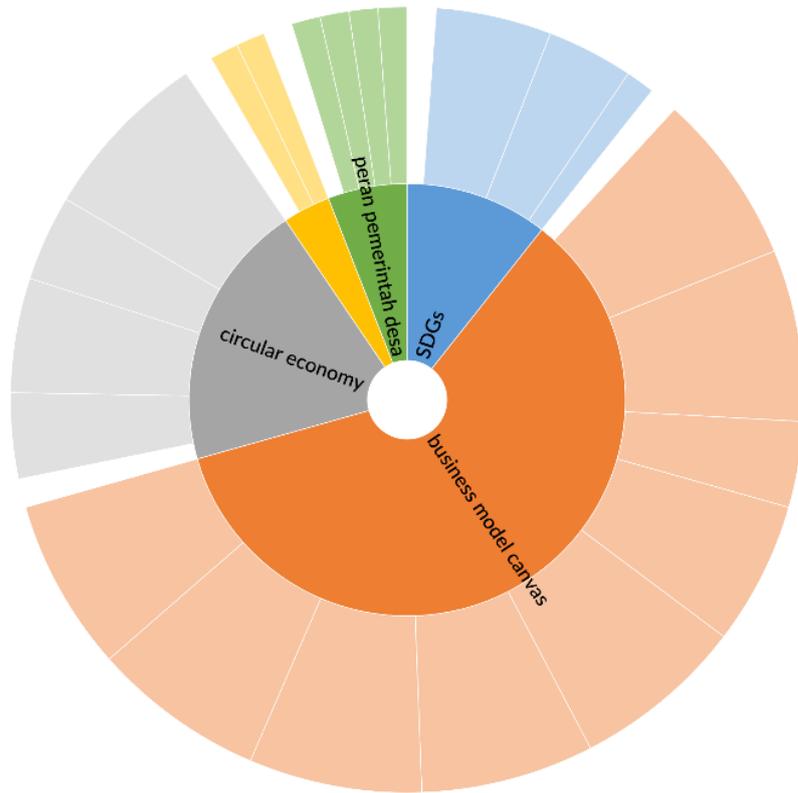


Figure 1. Chart Hierarchy

In Figure 1 it is explained that the green color depicts the role of the Aeng Tong-tong Village Government, the blue color depicts the Sustainable Development Goals (SDGs), the red color depicts the role of the Aeng Tong-tong Village Government, the blue color depicts the Sustainable Development Goals (SDGs), and the red color depicts the role of the Aeng Tong-tong Village Government. gray describe Circular economy, the orange fund depicts Business Model Canvas (BMC). In each the image above can concluded that the biggest orange color which means topic The most frequently used Business Model Canvas (BMC) discussed, while findings others in color blue is the smallest which means the least topic of Sustainable Development Goals (SDGs) discussed.

Media Topic Comparison/Project Map

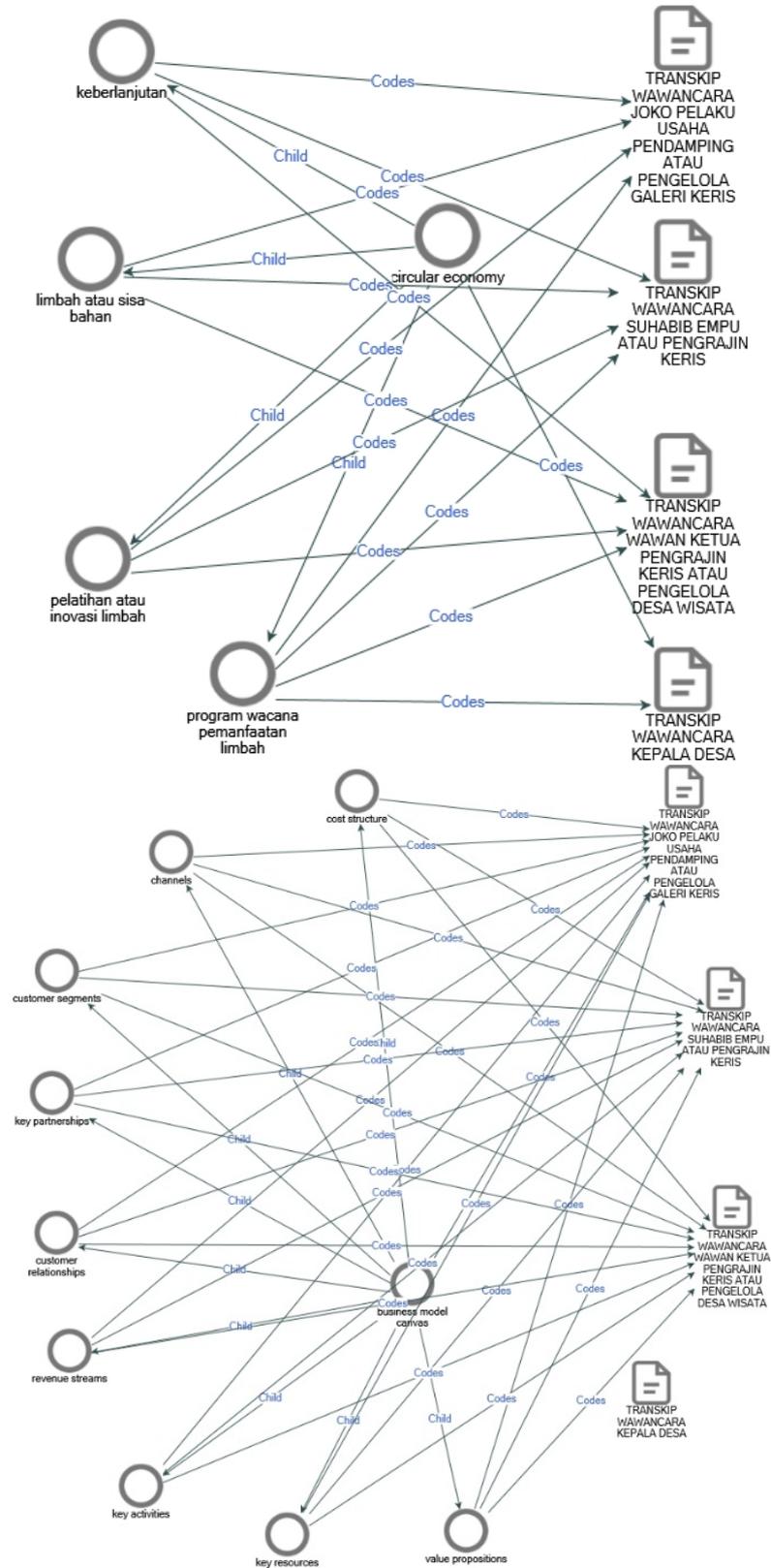


Figure 2 Circular Economy and Business Model Canvas (BMC)
Source: Processed Data, 2025

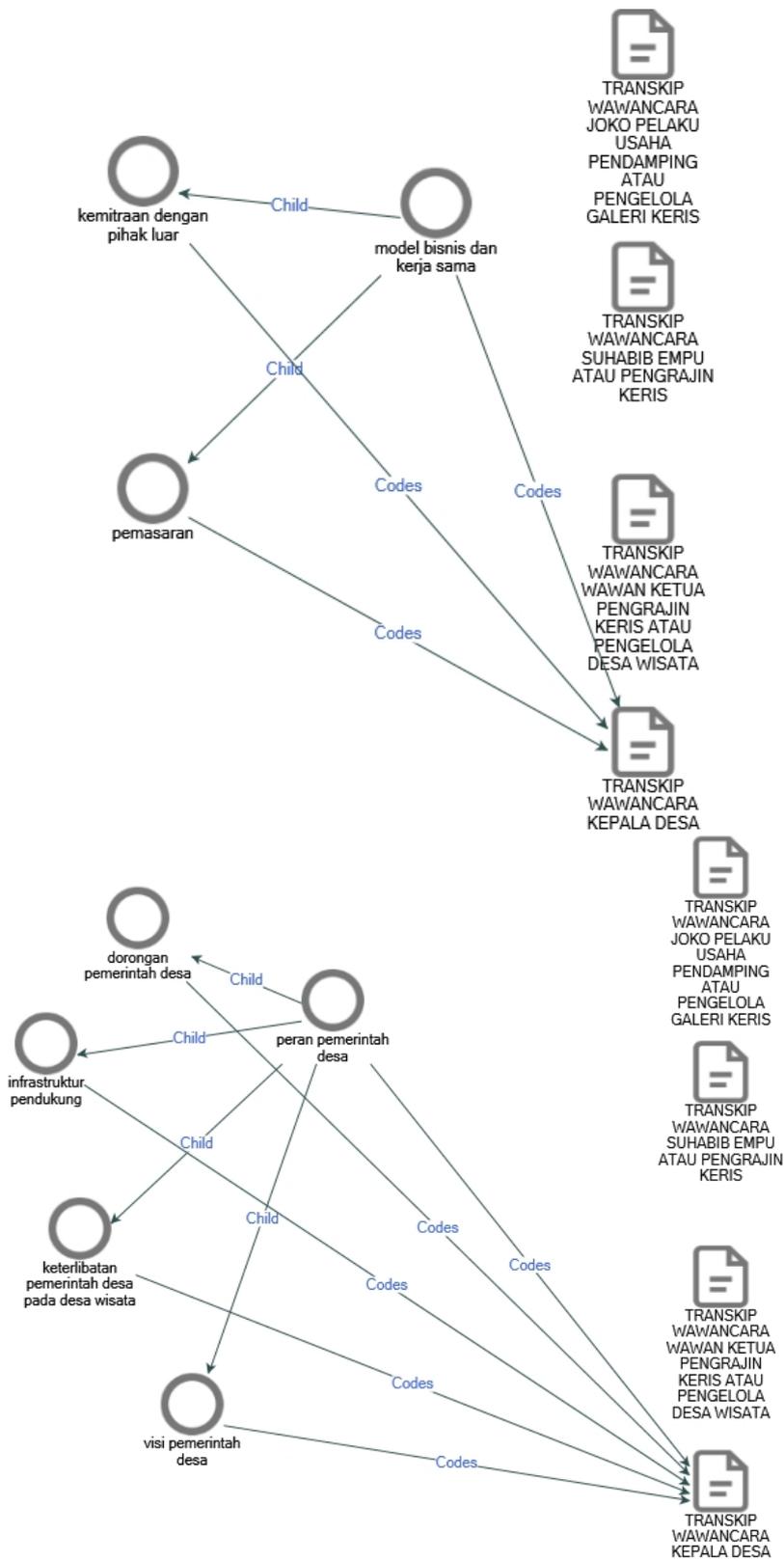


Figure 3: Business Model of Cooperation and the Role of Village Government
 Source: Processed Data, 2025

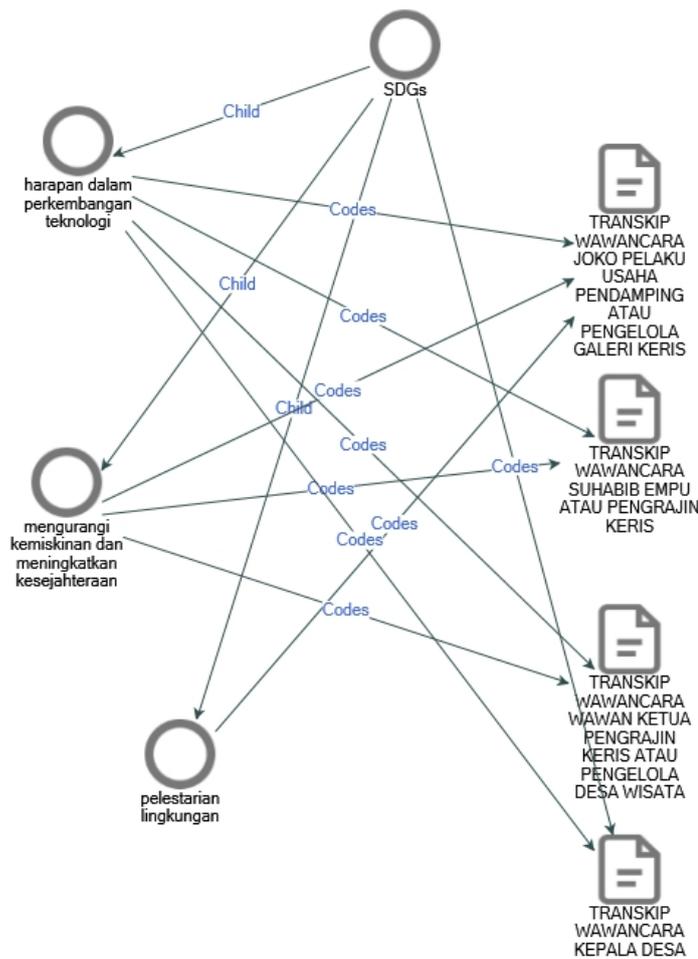


Figure 4 Sustainable Development Goals (SDGs)
Source: Processed Data, 2025

The next visualization used in this study is a media topic comparison/project map. This visualization presents an image that maps five main aspects of the Keris Craftsman business model in the Aeng Tong-tong Sumenep Tourism Village, namely the circular economy, Business Model Canvas (BMC), Cooperation Business Model, the Role of Village Government, and Sustainable Development Goals (SDGs). Each of these aspects has branches that describe the content of the business model contained therein. In the Business Model Canvas (BMC), there are discourse programs on waste utilization, training or waste innovation, waste or leftover materials, and sustainability. In the circular economy chart there are cost structures, channels, customer segments, key partnerships, customer relationships, revenue streams, key activities, key resources, and value propositions. Meanwhile, in the business and cooperation model chart, the content of the communication messages that appear consists of partnerships with external parties and marketing. As for the village government role chart, the content of the messages includes responses to village government encouragement, supporting infrastructure, village government involvement in tourism villages and the village government's vision. Then, the SDGs model chart consists of hopes for technological development, reducing poverty and increasing welfare and environmental preservation.

Project map visualization clarifies the structure and distribution of messages in the resulting business model, not only depicting the data structure but also showing how the main themes in the keris craftsman business model in Aeng Tong-tong Tourism Village are interconnected. Five main aspects that emerged, namely: circular economy, Business Model Canvas (BMC), cooperative business model, the role of village government, and Sustainable Development Goals (SDGs) become the central nodes that form the conceptual framework of the study. In the BMC aspect, identified branches such as waste utilization, training or innovation, leftover materials, and sustainability emphasize that the main issues for craftsmen are raw material efficiency and awareness of production sustainability. This is further strengthened by the circular economy which displays elements of cost structure, customer segment, revenue streams, and value proposition, thus demonstrating that circular economy practices for craftsmen are not just recycling materials, but also restructuring business strategies to be more competitive. Meanwhile, the cooperative business model demonstrates the importance of partnerships with external parties and access to marketing, thus demonstrating that the sustainability of the keris craft business cannot stand alone. In terms of the role of the village government, the visualization emphasizes the government's position as an enabler through the provision of infrastructure, regulatory encouragement, and support for the development of tourist villages, which makes the success of the craftsman's business model not only determined by individuals, but also by local institutions. Furthermore, branches in the SDGs aspect, such as poverty alleviation, welfare improvement, technological development, and environmental preservation show that the keris business has a broader social and ecological dimension than just economic value. Thus, the NVivo visualization through the project map emphasizes that the keris craftsman business model in Aeng Tong-tong Village is holistic and multidimensional, which is not only oriented towards profit through BMC and circular economy, but also based on cooperation, requires structural support from the village government, and contributes to the sustainable development agenda (SDGs).

The following is an explanation of each business model chart for Keris Craftsmen in Aeng Tong-tong Tourism Village, Sumenep, namely the circular economy, Business Model Canvas (BMC), Collaborative Business Model, Role of Village Government, and Sustainable Development Goals (SDGs).

Circular Economy

Circular economy diagram show the interconnectedness of the main issues in the keris craftsman business model in Aeng Tong-tong Tourism Village with four important branches, namely sustainability, waste or leftover materials, waste training or innovation, and waste utilization discourse programs. These four branches indicate that the keris craftsman business practices have entered a stage of awareness of the principles of a circular economy, where waste is not only seen as a problem, but also an opportunity to create added value through innovation and more sustainable management programs. The connection of sustainability aspects with local actors indicates a collective awareness to maintain a balance between economic benefits, preservation of tradition, and environmental preservation. This is in line with the concept of a circular economy that

emphasizes the importance of resource reuse and waste reduction through sustainable business design (Geissdoerfer et al., 2017) . In addition, the role of the village government reflected in the visualization shows its function as a facilitator that provides policy, infrastructure, and program encouragement, so that multi-stakeholder collaboration can be realized in the implementation of a circular economy at the local level. These findings support the view that the successful implementation of a circular economy in the context of MSMEs or culture-based businesses is greatly influenced by the synergy of local actors, including artisans, managers, facilitators, and village governments (Kirchherr et al., 2017) . Thus, this project map visualization not only shows the distribution of themes in the interview transcripts but also confirms the potential for a more environmentally friendly keris craft business ecosystem that supports sustainable development (Murray et al., 2017) .

Business Model Canvas (BMC)

This analysis chart represents the application of *the Business Model Canvas* (BMC) within a *circular economy framework* to the keris craft ecosystem in the Aeng Tong-tong Tourism Village. The chart structure demonstrates the interconnectedness between the main theme of *the circular economy* and four essential elements: sustainability, waste or leftover materials, waste training or innovation, and waste utilization discourse programs. These four elements serve as the main pillars in building a business model that is not only oriented towards economic profit but also considers social, environmental, and local cultural sustainability aspects. Sustainability is the main foundation that demonstrates how keris craftsmen and business actors maintain a balance between production and environmental sustainability, in line with the *triple bottom line principle* that emphasizes *people, planet, and profit*. (Ariastini & Semara, 2023) . The theme of waste or leftover materials presents both challenges and opportunities, where keris production residue can be reused to create products with economic value. This relates to *the key resources* and *value proposition dimensions* in BMC, as innovations from waste can become unique new offerings for consumers (Osterwalder & Pigneur, 2010). The training or waste innovations that emerged in the interview transcripts illustrate the transfer of knowledge that is crucial for the sustainability of the business model. This process falls under the *key activities* and *key partnerships aspects* , where collaboration between craftsmen, the village government, and external parties can encourage the birth of new innovations based on a circular economy (Ariastini & Semara, 2023) . Furthermore, the waste utilization discourse program facilitated by the village head demonstrates institutional support that strengthens *customer relationships*. and *channels* within the BMC framework, as the village government acts as a liaison between the artisan community and the market and other stakeholders. Thus, this chart confirms that the implementation of the *circular economy-based Business Model Canvas* in Aeng Tong-tong not only aims to increase the economic value of keris crafts, but also strengthens the social, cultural, and environmental aspects. This is in line with the view of Geissdoerfer et al. (2017) who stated that *the circular economy* can be a new paradigm in sustainable business strategies, and strengthens the findings (Murray et al., 2017) that its implementation must be adapted to the local socio-cultural context.

Collaborative Business Model

The Business Model and Collaboration Chart shows that the development of the keris business in Aeng Tong-tong Tourism Village does not stand alone, but is built through partnerships with external parties, marketing strategies, and support from the village government. This collaboration includes business assistants, keris gallery managers, and the village government acting as facilitators, while the craftsmen serve as the primary producers. This collaboration is important because it expands market access, strengthens competitiveness, and builds the cultural and economic value of the keris. As emphasized by (Fuadah et al., 2018), strategic partnerships are key to creating added value; while (Ariastini & Semara, 2023) emphasize that modern marketing is not just about selling products, but also building image and meaning. With the support of a triple helix collaboration pattern between the community, government, and the private sector (Etzkowitz, 2018), the keris can develop as a cultural artifact and an economic instrument that improves community welfare.

The Role of Village Government

Village Government Role Chart shows that government village own contribution important in develop village keris tourism through encouragement, provision infrastructure supporters, involvement active, and formulation vision development. Encouragement government village functioning as driving force motivation community and actors business For optimize potential local, temporary infrastructure supporters provide means basis that allows tour walk more effective. Involvement direct government village in activity village tour show commitment to mentoring, organization, and program sustainability. More continue, vision development village become direction strategic that is not only emphasize on improvement economy, but also maintain preservation culture and welfare society. This is in line with view (Etzkowitz, 2018) emphasize that government village play a role as facilitator development based participation societ, as well as reinforced by (Sasongko, 2022) who stated that vision government village must capable integrate potential local to in policy development sustainable. With Thus, collaboration between government village, community and actors business can strengthen position village keris tourism as center economy creative at a time preservation inheritance culture.

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) chart above illustrates the link between sustainable development goals and aspects of technological expectations, poverty reduction, welfare improvement, and environmental preservation, as reflected in interviews with keris tourism village actors. The SDGs serve as a global framework that can be applied at the local level, including tourism villages, by emphasizing the balance between economic, social, and environmental dimensions. Expectations for technological development are aimed at supporting innovation in the promotion, production, and marketing of keris products to make them more competitive, in line with the SDGs' goal of encouraging industry, innovation, and infrastructure (UNDP, 2020). Efforts to reduce

poverty and improve welfare are evident through the role of keris tourism villages as instruments for local community economic empowerment, as emphasized by (Hujairi et al., 2024) that tourism villages are able to create new jobs and increase community income. Furthermore, environmental preservation is crucial so that tourism-based development does not damage the ecosystem, but rather maintains the sustainability of local resources (Nikmatul Masruroh, et al., 2022) . Thus, the integration of SDGs in the Keris tourism village demonstrates how the global agenda can be translated into a local context through collaboration between the village government, the community, and business actors, thus not only providing economic benefits but also maintaining social and ecological sustainability.

Furthermore, from the results of the Media Topic Comparison/Project Map analysis above, based on primary data obtained through recording and analyzing the Circular Economy- Based Business Model with the Business Model Canvas on Keris Craftsmen in the Aeng Tong-tong Sumenep Tourism Village. The chart below discusses the relationship between these findings and the theoretical approach used in the research, namely the Integration of Circular Economy in the Business Model Canvas.

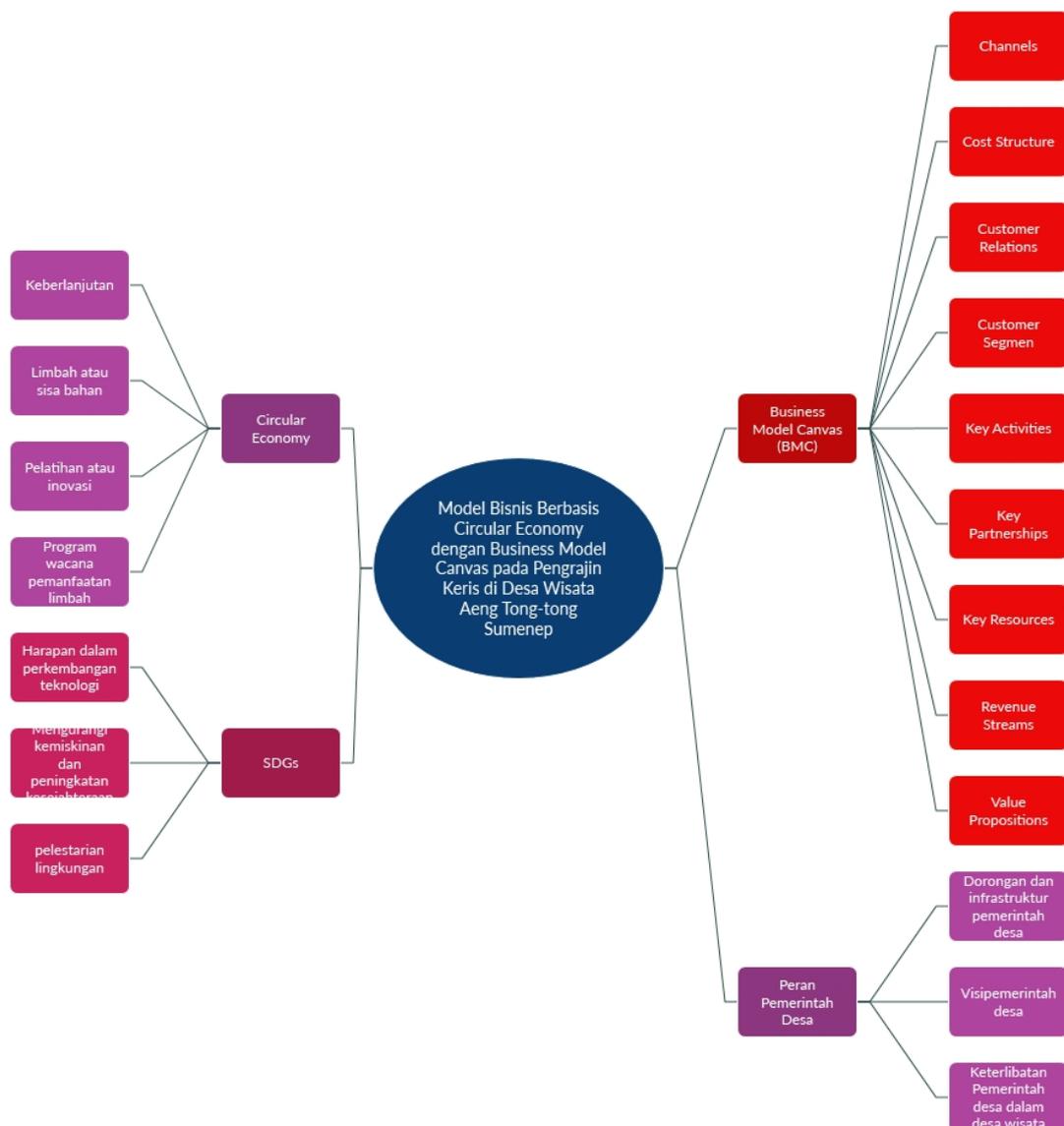


Figure 5 Mind Map
Source: Processed Data, 2025

Word Cloud Visualization

A word cloud is a visualization of the most frequently occurring words in a particular medium or data set (Plard & Martineau, 2021) . This technique allows researchers to quickly identify dominant words, making it easier to understand the main issues, themes, or concepts being discussed. In the context of qualitative research, using word clouds in software such as NVivo is very useful for providing an initial overview of the main patterns and focus of the interview, survey, and document data being analyzed. This visualization helps researchers identify keywords, important issues, and frequently occurring topic trends, thus serving as the basis for more in-depth analysis (Rahman et al., 2025) . Thus,

thus accelerating the process of determining the main theme or issue in the research. Word frequency visualizations in NVivo are typically displayed in tables or graphs, where the left indicates the number of frequently used words, while the right indicates the number of less frequently used words. This process also includes filtering out irrelevant common words, resulting in more focused and accurate analysis results. Furthermore, the use of visualizations such as word clouds or bar charts helps simplify data interpretation and enhances the readability of the analysis results for readers. Thus, Word Frequency Results not only accelerate the data exploration process but also reveal global patterns that might be difficult to see with manual text analysis alone, thus providing more comprehensive insights into the phenomenon being studied (Rahmawati, 2022) .

keris	model	bahan	budaya	secara	menjad	luar	sirkula	usaha	busine	canva	empu	tetap	ukir
				lokal	lingkum	menuru	langs	baru	belun	gagal	kemb	kolek	komunilai
	bisnis	wisata	ekonomi	pemerint	pernah	circular	pembe	pende	kecil	key	menc	misal	modepeng
			bisa	utama	produk	econom	pembu	sudah	sektor	elem	kebe	mana	media
desa	ada	kerajinan					pendu	wisata	tatur	harap	meng	agar	berda
			sisa	aeng	wawan		logam	alat	bany	indus	sepe	daya	dilakudinas
						pihak	produk	biaya	berke	ingin	teng	galeri	konse
pengrajin	tong	pelatihan	limbah	lebih	berbasi	proses	sebag	kayu	besi	inovat	tidak	kerja	mem
												mem	menju

Figure 6 Visualization of World Frequency Results
Source: Processed Data, 2025

Visualization Chart of Word Frequency Results displayed in form tree map the shows the most frequent words appear from results data analysis using NVivo (Limna, 2023) . Size box on visualization reflect frequency the emergence of the word: increasingly big size box , the more often the word appear in the data. On the chart This, the words "keris", "village", and "craftsman" looks own more boxes big compared to other words, which shows that topic main discussion Lots related with tradition keris making, role village, as well as existence craftsmen . Meanwhile that , other words like "culture", "economy" , "crafts", "tourism" , and "materials" appear with size moderate , indicating that aspect cultur , economy creative, and potential tourism also becomes issue important in the data. As for the word with size more small, for example "training", "waste" or "process" , although No dominant, fixed give information supporters related context study.

So, the results This show that focus main study relate close with preservation culture local through the keris, which is linked with empowerment craftsmen village as well as development sector tourism and economy creative. Visualization like This make things easier researchers in recognize keyword pattern in a way fast, all at once help directing the coding and discovery process theme. With Thus , word frequency treemap No only

functioning as description statistics, but also as instrument exploration beginning in analysis qualitative (Limna, 2023) .

CONCLUSION, SUGGESTION, AND LIMITATION

Research on Circular Economy-Based Business Models with Business Model Canvas (BMC) for Keris Craftsmen in Aeng Tong-Tong Tourism Village, Sumenep shows that the integration of circular economy principles in business models can increase resource efficiency, reduce waste, and create value-added derivative products that support economic and environmental sustainability. The application of Circular Business Model Canvas (CBMC) to keris craftsmen is not only profit-oriented, but also emphasizes aspects of cultural preservation, processing metal and wood waste into new products, and strengthening marketing through digitalization, green marketing, and NFT technology as a form of innovation. The results of the study also confirm that village government support, multi-stakeholder collaboration, and linkages to the Sustainable Development Goals (SDGs) agenda are important factors in the success of a holistic and sustainable business model. Thus, the application of CBMC can be an appropriate strategy to address the challenges of managing culture-based businesses to be more adaptive to environmental issues, competitive in the global market, while improving the welfare of local communities.

ACKNOWLEDGMENT

We extend our heartfelt gratitude to the Ministry of Education, Culture, Research, and Technology for their funding support, which has made this program possible. Our appreciation also goes to the Research and Community Service Institute (LPPM) of KH. Bahaudin Mudhary Madura University, Tebuireng, for their guidance and support throughout the implementation of this program. We are also grateful to all other parties who have contributed to the success of this program, although they cannot be mentioned individually.

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