

PENTA-HELIX MODEL IN BAMBOO CRAFT BUSINESS DEVELOPMENT

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Abstract

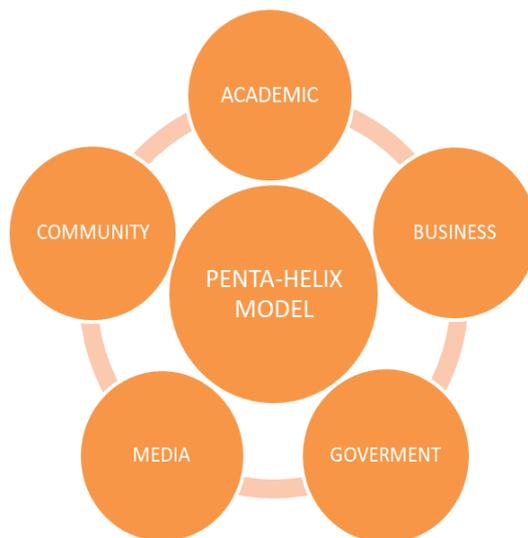
This study examines how the role of penta-helix actors can develop bamboo craft businesses. According to some researchers, the Penta-helix model is ideal for advancing micro, small, and medium enterprises, and bamboo crafts are classified as micro-small-medium enterprises. Research approach, qualitative with case studies. Descriptive analysis techniques. The population is the entire Penta-helix actor: academia, the business world, government, communities, and the media. Bamboo handicraft business analysis unit in Pasirjambu District, Bandung Regency, West Java, Indonesia. Research informants were 12 people representing each penta-helix actor. The results showed that the role of academics in developing bamboo handicraft businesses in Pasirjambu could have been more optimal. This is due to the need for special education and training programs for bamboo artisans. Academics recognize that the active role has yet to be fully carried out. Implementation of activities only on request; so is the role of government. The government has made efforts to promote craftsmen, including micro, small, and medium enterprises (MSMEs), in community handicraft exhibitions. However, the craftsmen stated that the government needs to pay attention to them, which is meant to help business capital. Furthermore, the role of the business world in the Pasirjambu area is that entrepreneurs have yet to help craftsmen, for example, becoming the adoptive father of craftsmen or capital. So far, financial assistance for general public activities, so the craftsmen state that there has yet to be concrete assistance from the business world. Subsequently, communities of bamboo lovers were formed, but their activities could have been clearer. The craftsmen felt the community's contribution to advancing the bamboo craft business was missing. Finally, media: The role of the media has been felt by craftsmen, namely, with prospective buyers who get information from the media and buy bamboo handicraft products from Pasirjambu craftsmen.

Keywords: Penta-Helix, Bamboo Craft, Handicraft Business, Bamboo Business Development

INTRODUCTION

The penta-helix is an ideal model for developing micro and small enterprises. The development of the penta-helix concept (Palestho & Octanisa, 2023) began with the triple-helix theory from Etzkowitz and Leydesdorff (2000). The triple helix concept focuses on three actors: universities, industry and government. In 2014, Lindberg developed a new concept called quadruple helix with added elements of local community as a complement to the triple-helix that developed first. At the same time, the Penta helix concept was proposed by Riyanto in 2018 to include the current media's significant role in developing social capital development (Rizkiyah, 2019).

Figure 1: Penta-helix Models



Source: Vani et al., 2020

Carayannis and Campbell (2013) emphasize that policies and practices are important collaborations between government, universities, industry, and civil society so that they can interact intelligently, effectively, and efficiently. The Concepts of the Triple-helix and Quadruple-helix are explored to optimize further the results of the developed objects. (Maturbongs, 2020). The implementation is that the government, academia, and companies strive to create conditions according to needs to form an integrated innovation ecosystem. The government makes policies with the allocation of financing in the budget plan. There is an understanding that the quadruple helix further complements the triple helix concept into the Penta-helix by adding civil society and the role of the media. This understanding shows that innovation development in various sectors in the 21st century is ongoing. The Penta-helix model moves to go beyond the concept of the knowledge economy. Triple-helix and the concept of knowledge society in Quadruple-helix became the innovative approach of Penta-helix as developed by Carayannis and Campbell (Carayannis & Campbell, 2013). The Penta-helix model that emphasizes the socioecological transition of its existence is needed by society to increase economic value; therefore, the Penta-helix becomes ecologically sensitive.

Next, the framework of the Penta-helix innovation model makes the natural environment of society and economy seen as a driver for knowledge production and innovation, thus determining opportunities for the knowledge economy. The Penta-helix model in this study will be identified to the extent to which it contributes to the development of the bamboo handicraft business.

Bamboo is a very important type of plant for Indonesia and other tropical countries because it is very important to meet people's daily needs (Jong et al., 2018). Bamboo can provide economic value for those who use it (Sopandi, 2017). Indonesian people and culture are very close to everyday life. Bamboo is a plant that is easy to grow anywhere, ranging from hills,

forests, highlands, and lowlands. Bamboo in Indonesia is very large. Indonesia has about 140 types of bamboo. Some types of bamboo are easily recognized and widely grown (Li et al., 2020). Indonesia, among others, gombong bamboo, rope bamboo, black bamboo, yellow bamboo, apus bamboo, legi bamboo, and many others. Bamboo supports people's lives with various applications; it can be for buildings, wood substitution materials, crafts, musical instruments, and others (Sopandi, 2017). Natural resources are widely used by the community because they provide many benefits are bamboo. In addition, bamboo has the properties of strong, straight, flat, hard, easy to split, easy to shape, easy to work, and easy to transport. (Cidhy et al., 2016).

Bamboo plants are quite large and easy to get around in community settlements, especially rural areas. Bamboo is a versatile plant for most people in Indonesia. Multi-functional value benefits of bamboo plants include improving land, hydrological balancing, and global warming, even bamboo can provide high economic income for those who use it (Wahyudi et al., 2023). Bamboo can be made into various types of products, both for functional and aesthetic purposes interior or exterior of the room. And, in the future bamboo is expected to be the main material to replace world wood material which is currently very much reduced population (Sopandi, 2017).

The benefits of bamboo plants and products when viewed from an economic point of view compared to wood products, among others, are able to provide an increase in people's income in a relatively fast time, in just 4-5 years bamboo plants have been able to harvested (Anshor and Nurlela, 2023). The description of the benefits of plants and bamboo products shows an expectation that the need for bamboo will continue to increase in line with community development, there should be no fear of a shortage of bamboo raw materials (Diniaty and Sofia, 2000).

The bamboo handicraft product business has been engaged by the Indonesian people for a long time, especially in rural areas. The development of the bamboo handicraft business has a positive impact on efforts to increase the income of craftsmen. Bamboo is predicted to be the material of the future because bamboo can be made into a variety of products ranging from handicrafts, food, and building materials to household appliances such as plates, glasses, decorative lamp crafts, flower vases, and others. This is in line with research related to the development of bamboo handicraft businesses for community empowerment (Anshor and Nurlela, 2023)

There are various advantages of handicraft products using bamboo materials, namely first: to make handicrafts, the materials used are very easy to get from the surrounding environment. Secondly, bamboo material is also relatively cheap. If it has been processed, then the handicrafts from bamboo material can increase the selling price and can increase the income of the community of craftsmen/bamboo handicraft product businesses. (Bowyer et al., 2014).

Bamboo material is known by the public to have good properties to be utilized, including: the stems are strong, straight, flat, hard, easy to split, easy to shape, and easy to work with and easy (Suryani et al., 2019). The production process with bamboo raw materials has been carried out

starting from the use of the simplest technology to the use of high technology on an industrial scale. Utilization of bamboo in the community, usually for household needs (Pramono and Wahyuni, 2021).

The use of bamboo with handicraft types, such as woven or other types of handicraft accessories, is not yet developed; it still needs careful/serious handling from various parties. According to some researchers, the use of the penta-helix model can help the development of bamboo handicraft businesses, so in this study, it will be seen how the role of the government, the business world, educational institutions, community communities, and the media in developing bamboo handicraft businesses, which will be seen in the case of bamboo handicraft businesses in Pasirjambu District, Bandung Regency, West Java, Indonesia. This research is based on the pillar known as Penta-helix. Research with the Penta-helix model has been carried out, for example, research on the Development of Village Potential through the Village Economic Granary Model (Yunas, 2019) the creative economy and its competitiveness (Syahbudi, 2021). However, research that examines the development of bamboo handicraft business is still small, for researchers want to examine the role of penta-helix in the development of bamboo handicraft business with the case in Pasirjambu District.

METHODS

The research method used is qualitative with case studies and descriptive analysis techniques. The selection of this method is expected to be able to produce objective facts in the field in depth, including speech, writing or observable behavior from a craftsman, group, community, or bamboo craft organization (Sugiyono, 2018). Case study research in these types of qualitative research will get to know more deeply or understand in depth the reasons why a phenomenon or case can occur (Purwanto, 2022). The population for this study is Penta-helix stakeholders from bamboo handicraft businesses in Pasirjambu District. The Penta-helix concept used is what Riyanto proposed, namely the synergy of academics/educational institutions, the business world, government, community and media. The role of the media today is very significant, especially developing social capital in development (Rizkiyah, 2019). The unit of analysis is a bamboo handicraft business in Pasirjambu District, Bandung Regency, and West Java, Indonesia. A total of 12 informants with sampling were determined by researchers based on the experience and knowledge of informants about objects, namely mastering and deepening the bamboo craft business and the five research parameters. To make it easier to take samples and informants, the description of samples and informants can be seen in table 1 as follows:

Table 1: Table of informants

Elements	Role	Data Sources	Informant
Academics/Educational Institutions	Drafter, providing scientific and technical knowledge. Strengthening Human Resources and Information Technology Capacity	Universities that have an MoU and actively provide assistance for the development concept of Bandung Regency, West Java, Indonesia	University Research Institutes, Lecturer / Mr/Mrs X
Government	Regulators, Facilitators. Responsible for creating a conducive environment for business growth and development through policies and facilitation.	Agencies involved in developing bamboo handicraft businesses (Diskop UMKM, Disperindag, Disparbud)	Head of Service/Head of Field Mr/Mrs X
Business	Enabler, Investor Supporting business developmen, investing funds or other forms	Entrepreneurs who operate in the Pasirjambu District Area, Bandung Regency, West Java, Indonesia	Business Owner/manager
Community	Accelerators, Mobilizers, namely all parties related to the bamboo craft business	MSME Activists, Bamboo Craftsmen and Communities of bamboo handicraft lovers	Community Leader/Community Representative/Bamboo Handicraft Business Actor
Media	Expender, Publications.	Print and electronic media that care about informing creative businesses in Bandung Regency, West Java, Indonesia	Media Representative

Source: Researchers, 2023

RESULTS AND DISCUSSION

Pasirjambu District is one of the sub-districts in Bandung Regency, West Java, Indonesia located 30 km south of Bandung city or about 12 km from Soreang. Pasirjambu sub-district consists of 10 villages, namely: Cibodas, Cikoneng, Cisobdari, Cukanggenteng, Margamulya, Mekarmaju, Mekarsari, Pasirjambu, Sugihmukti and Tenjolaya. The characteristics of business of the people of Pasirjambu District are working in agriculture and plantations, in addition to working to support the activities of tourist areas. Pasirjambu – Ciwidey, besides being famous for its tourist areas, is also known as the center of bamboo crafts of Bandung Regency, West Java, Indonesia. The following is a picture of the population of business/economic activities of the Pasir Jambu community as below:

Figure 2: Number of Home Industries/Home Businesses

Desa/Kelurahan Village/Urban Village	Industri Pengolahan Manufacturing Industry			
	Industri Kecil Small Industry		Industri Rumah Tangga Cottage Industry	
	Perusahaan Company	Pegawai Employee	Perusahaan Company	Pegawai Employee
(1)	(6)	(7)	(8)	(9)
SUGIHMUKTI	-	-	17	-
MARGAMULYA	-	-	57	-
TENJOLAYA	-	-	25	-
PASIRJAMBU	-	-	112	-
MEKARSARI	-	-	74	-
CISONDARI	-	-	56	-
CIBODAS	-	-	46	-
CUKANGGENTENG	-	-	38	-
MEKARMAJU	-	-	6	-
CIKONENG	-	-	20	-
Kec. PASIRJAMBU PASIRJAMBU Industry	-	-	451	-

Source: BPS Kabupaten Bandung 2021, Pasirjambu in Numbers

Figure 2, shows the characteristics of community business activities, where the people of Pasirjambu are identified as working in agriculture, plantations, and supporting regional tourism. There are several villages of people who are active and strive in the field of bamboo crafts, What stands out is woven products and experts in making buildings based on bamboo materials. And for bamboo handicraft products other than woven the amount is small, for example making various bamboo crafts, such as fitting flowers, lamps, bamboo cups, or various other crafts. Bamboo handicraft business activities in Pasirjambu can be seen as in figure 3, 4, 5, and 6.



Figure 3: Interview with business owners, 2023



Figure 4: The process of making woven bamboo



Figure 5: Picture of house bamboo



Figure 6: The process of making house bamboo

The description of research results based on penta-helix parameters can be described as follows:

Academics

Academics in the Penta-helix model act as drafters and strengthen the capacity of human resources and information technology. As a drafter, academics can provide input by conducting academic studies according to government needs, and in this Research, Academics can contribute to standardizing the bamboo craft business process, helping to improve the quality of handicrafts, and improving the skills of bamboo craftsmen. Academics as a source of knowledge with concepts, theories, or novelties that are suitable for the development of bamboo handicraft businesses in Bandung Regency, namely bamboo craftsmen in Pasirjambu District. Bamboo artisans gain the additional ability to make products that have competitive advantages and are sustainable. The role of academics for bamboo artisans is knowledge transfer and helping to disseminate information with related parties in the business development of bamboo artisans. Several universities contributed to developing artisans by providing input and collaborating with the Bandung Regency government according to the needs of the Regional Government according to the competencies of universities. Academics who have cooperation with the Bandung Regency Government according to the Bandung Regency Tourism and Culture Office more than 14 institutions, including IPB University, Padjadjaran University, Bandung Institute of Technology and Pasundan University, Telkom University, Bandung State Polytechnic, Indonesian Education University, Sunan Gunung Djati Islamic University, Bale Bandung University, Nurtanio University and Universities in the Greater Bandung area, including General Ahmad Yani University.

The results show that bamboo artisans in Pasirjambu District, stated directly in the field, contributions from academics or universities have yet to play a concrete role in helping the development of bamboo artisans' businesses. Craftsmen feel they need help to improve product quality, as well as to improve their capacity as craftsmen. Some academics come to craftsmen, usually limited to asking for information and data related to their efforts, usually for research purposes or inventory of data on craftsmen and their craft businesses. In fact, according to

craftsmen, they hope to get the latest additional knowledge in model development and product quality, which still needs to be obtained. Craftsmen exemplify that there is knowledge to make new products with shapes or designs that are different from existing ones. So, it requires experts in product design so that new models of craft products are produced due to product design development. Some craftsmen know that these skills are in the Product Design Study Program of the Bandung Institute of Technology (ITB). However, according to them, ITB still needs to provide direct training for craftsmen in Pasirjambu.

Furthermore, craftsmen need help with knowledge of marketing handicraft products through digital marketing so that universities with Faculties of Economics and Business can contribute to these digital marketing purposes. Even that has not been done by the University, so the direct contribution to bamboo artisans in Pasirjambu has not been felt either. Concerning information obtained from craftsmen, researchers triangulated information about the role of Academics/universities to the government universities. The result obtained was that the government stated that efforts to develop a special business for bamboo crafts have not run according to the expectations of bamboo craftsmen because the programs that the government has carried out in collaboration with universities are still running development programs within the business frame small and medium enterprises (MSMEs) in general, namely the empowerment of MSMEs in various fields and sectors, have not been specific to the field or sector of bamboo artisans in Bandung Regency.

Government

The government in the Penta-helix model has a role as a regulator and controller. The government makes policies and regulations to show responsibility in developing businesses in its regions. The government is involved in all activities because it is responsible for the progress of its regions, ranging from planning, implementation, monitoring, controlling, promotion, financial allocation, licensing, programs, and making regional regulations that support the acceleration of community business. Efforts to develop artisans and increase artisan knowledge, public innovation policies, support for innovation networks, and public-private partnerships are the responsibility of the government. The government, in this case the Bandung Regency Government has a role in coordinating stakeholders who contribute to the development of handicraft businesses, specifically bamboo crafts in Pasirjambu District. The results of the researchers' search on the role of the Bandung Regency Government in terms of advancing the Bamboo handicraft business in Pasirjambu District have not been optimal, even information from their artisans has not felt the government's real contribution in helping craftsmen, for example helping capital or providing direct assistance to craftsmen. "We, trying to be independent". That's what the craftsman said. Contradicting what was conveyed by the government, represented by the Pasirjambu sub-district, they said they had tried to help the artisans by participating in disseminating community businesses to other parties, even on every occasion the government participated in promoting that in Pasirjambu there were craftsmen and bamboo handicrafts. The government stated that the development of MSMEs in general has become an agenda that is always empowered and developed. Apart from the contribution of bamboo artisans in Pasirjambu District, the government stated that facilitation for MSMEs

has been carried out, and it is part of the implementation of government's roles and responsibilities that have been implemented.

Business or Entrepreneur

Business people or entrepreneurs in the Penta-helix model act as enablers and investors. Business people are entities of entrepreneurs who are expected to carry out business processes in creating added value and contributing to increasing sustainable economic growth of the surrounding community. The business leaders also act as enablers to help build infrastructure for artisans and small business groups in Bandung Regency, more specifically bamboo artisans in Pasirjambu District. Currently, the era is digital, entrepreneurs can help build information technology infrastructure for the development of bamboo handicraft businesses in Pasirjambu District so that they become more productive and more advanced. The MSME development program that has been launched by the Bandung Regency Government, that entrepreneurs have a role as parties who can help capital for craftsmen and also help market bamboo handicrafts. The characteristics of entrepreneurs in Bandung Regency are tourist destination entrepreneurs, hotel businesses, restaurant businesses, culinary businesses, travel agent businesses, and transportation businesses. So that these entrepreneurs can make bamboo handicraft products as a supporting element in their business activities. Paratourism entrepreneurs can play a role as parties who contribute to helping develop bamboo handicraft businesses. The synergy of the role of Penta-helix actors, and entrepreneurs can help the development of businesses from bamboo artisans in Pasirjambu District to further develop creativity, ideas, and skills by collaborating with various related parties. The results of the researcher's search, the implementation of the role of entrepreneurs towards bamboo artisans in Pasirjambu District, Bandung Regency, West Java has not been seen in the field. A statement from craftsmen, that the craftsmen have not got the real role of entrepreneurs as expected, namely to facilitate their craft business. Recognition of craftsmen, there are already entrepreneurs who use aesthetic elements of their place of business with bamboo craft materials, but that is still a small number compared to the existing potential. The government as a facilitator, seeks to encourage the optimization of collaboration between communities as small business actors, in this case bamboo artisans. However, if it is not optimal, according to the government, this is still a process that is always sought to provide benefits to the parties, namely the craftsmen themselves and of course for entrepreneurs. The government has felt helped by the presence of entrepreneurs in Bandung Regency, so that it can drive the handicraft sector which is indeed a basic business in the community.

Community

The Community in the Penta-helix model is a community group that cares about bamboo handicraft business in Pasirjambu District, Bandung Regency. Community groups act as accelerators and mobilizers. In this case, the community is people who have the same interests and passion, sway to develop the business carried out by bamboo artisans so that it can encourage its development. The community can function as a liaison between stakeholders to help the bamboo craft business. The community is active in various processes to facilitate artisan business activities; including being a driving force in the field of promotion and

information. The community's role is to promote products or services that can be produced or done by bamboo artisans. The community in this study is basically a stakeholder entity of the bamboo handicraft business which was formed with the aim of meeting the needs and actualizing the existence of craftsmen so that their business can develop. When researchers traced the driving community of bamboo handicraft businesses in Pasirjambu District, according to craftsmen, that community once existed, but there was no action. Even if there are activities, not summarizing all craftsmen, it seems to attach importance to a certain group of craftsmen, and eventually, the community does not develop. When asked what the name of the community is, the answer is that he has forgotten what the name of the community is and his activities are no longer visible. Unlike in Bandung City, the famous bamboo artisan community is the Indonesian Bamboo Society (IBS) which is fronted by Mr. Adang Muhidin, Mr. Anang Suryana and Abah Yudi (Komunita, 2018).

Media

The media on the Penta-helix model acts as an expender and publicity. Media plays a role in supporting publications, and promotions to build brand image. The Attempt to be carried out by the media to develop bamboo handicraft business in Pasirjambu District, Bandung Regency, is already promoting and information on print and electronic media. The role of the media is currently quite broad, especially with the availability of online social media that facilitates publication and socialization efforts. The development of social media such as Facebook, Instagram, Twitter, WhatsApp, and other media is very helpful for massive promotion and information, so that the efforts made by the community, MSMEs are greatly helped, namely by not requiring too large a cost. The role of the media related to the development of bamboo handicraft business already exists, although it is felt that it is not yet massive. This is felt by craftsmen with consumers from afar, and when asked where to know it from? They claim to be based on information from the media, especially now that it is online media / social media. There is hope from craftsmen, if the government that has regulations and budgets can encourage universities and the business world to collaborate with the media to promote handicraft products produced by bamboo artisans in Pasirjambu, so that they can develop more advanced than now, which according to them the level of sales/orders is declining.

CONCLUSIONS

The conclusion that can be stated in this study is that the role of the Penta-helix Model in the development of bamboo handicraft business in Pasirjambu District, Bandung Regency, has yet to fully run according to the roles and functions of each actor. This is due to the limitations of implementing their respective roles and functions. Academics have yet to play a role in providing their expertise. For example, in the field of product development, training on the latest design development or training on marketing strategies following product characteristics and digital marketing has yet to run as expected. Next, regarding strengthening bamboo craftsmen, mapping has yet to be carried out on bamboo handicraft businesses. Activities are still general for developing small and medium enterprises (MSMEs) in Bandung Regency. The government needs to optimize the role of universities that cooperate with the Bandung Regency

Government to contribute according to their competencies so their role has not been felt directly by bamboo craftsmen in the field.

The government plays a role in developing craftsmen, including bamboo artisans, in the Bandung Regency Regional Development Plan. The government's partiality to bamboo artisans in Bandung regency has yet to be felt by the craftsmen. Although, according to the government, attention has been given, still in a wider frame, not specifically to bamboo craftsmen but to develop craftsmen as a whole, namely MSMEs in Bandung Regency, business people/entrepreneurs can play a role in developing the business of craftsmen / MSMEs, including bamboo craftsmen in Pasirjambu District, providing services and facilities following the needs of the actors MSMEs/bamboo artisans, for example, allocate funds for their corporate social responsibility or efforts to provide training to strengthen the skills of artisans and others. The community has a role in assisting the government in socializing bamboo handicraft businesses in Pasirjambu District, helping to encourage entrepreneurs / private sector in developing bamboo handicraft businesses and assisting in providing renewal in the form of innovations in the field of crafts for the benefit of the community and tourism in the Pasirjambu and Ciwidey areas. The media, playing a role in socializing the empowerment of MSMEs and handicraft businesses to the community, informs and promotes handicraft businesses in the Pasirjambu District area.

Recommendations

Regarding the problem of synergy of penta-helix stakeholders in the development of bamboo handicraft business in Pasirjambu District, Bandung Regency, it was identified that there is still no understanding in carrying out the vision, mission, perception and cooperation between penta-helix actors. Coordination and synergy that have not been optimal among stakeholders have made the development of bamboo handicraft business in Pasirjambu District stagnant and has not shown progress according to the expectations of all parties. For this reason, real work steps are needed, directly to bamboo artisans from the Bandung Regency local government as the main stakeholders by creating joint teams between stakeholders and formulating new breakthroughs that can unite visions and perceptions, so that simultaneous cooperation and coordination are built and able to develop bamboo handicraft business in Pasirjambu District.

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