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# Open Innovation in Service Industry

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**Abstract**--Service industry is an emerging industry which contributing a significant trend of contribution to GDP in developed countries. Tourism industry plays a vital role on the Indonesia economy where tourism corridor strategy located in Bali, West Nusa Tenggara, and East Nusa Tenggara. Technological changes might shape the tourism industry in many different ways. The sustainable tourism village industry development has become a topical agenda of development in Indonesia. This study explores to what extent the Lombok sustainable tourism village industry development has engaged open innovation practices. The *Setanggor* tourism village, *Mertak* tourism village, and *Pijot* tourism village were elected on the case study. Focus group discussion with stakeholders employed on this study and it was followed by in-depth interview with key informants during study period between January 2018 and October 2020. The finding explores inbound open innovation and outbound open innovation among the Lombok sustainable tourism village. Further networks and actors involved were also described in great detail on the paper.

**Keywords**-- Service industry, tourism industry, the sustainable tourism village industry, cluster, open innovation

## I. INTRODUCTION

Service industry shows a significant contribution to the global economy where tourism is one of the contributors. A shifting trend from manufacture to service industry has driven innovation dynamics on service industry sector. Open innovation terminology for the first time was mentioned by Henry Chesbrough [1] when he published his book "The New Imperative for creating and profiting from technology. He highlighted the importance of closed innovation in the early 20<sup>th</sup> century. Most companies provided R&D budget and recruited the best engineer on the regions for research and development activities to meet customer needs and finally enjoy much profit. This innovation strategy could not be used any longer since the radical changes on the industry when internet introduced for the first time at the entrance year of 2000. This helped companies for knowledge and technology exchanges for free and they might extend the network and maintain their competitiveness globally [1]. Open innovation has taken much attention from industry and academics to the importance of inflowing knowledge and technology to companies and use it to expand the market as part of internal and external innovation [3, 4]. It has been researched on various industry in many countries to explain

open innovation, innovation process, and deeper understanding on its benefits on great detail [2, 4, 5, 6, 7, 8, 9]. However, most open innovation research has focused on the multinational corporation and only few researches highlighted on small-and-medium-sized enterprises which is still fragmented [10, 11, 7]. Although, recent studies have focused on open innovation in small-and-medium-sized enterprises in many contexts with different complexities, so that, there is a critical challenge to measure the level of openness innovation [12, 11]. This might confuse scholars to explain open innovation in great detail to all aspects.

Aim of this research is to explore to what extent the Indonesian tourist village industry have practiced open innovation. This research might contribute deeper understanding of the level of openness innovation in small-and- medium-sized enterprises on the Indonesia context.

## II. METHODS

### A. Research Setting

The research setting was in the Lombok tourist village industrial cluster. The Lombok *Setanggor* tourist village, the *Mertak* tourist village, and the *Pijot* tourist village were selected because of some reasons. First, the tourist village industrial cluster development is a national program to support the achievement of 20.000.000 international visitors in 2019 [13]. Second, The Lombok tourist village industrial cluster development is to support the *Mandalika* special region economic development. Third, Socio-economic tourism development should be developed by the tourist village industrial cluster development, therefore, it searches for the best practice model of the tourist village industry

### B. Research Design

Given the earlier works of open innovation model by Van de vrande et al [7], we applied an exploratory case study research strategy with qualitative methods [14, 15]. This method helps us to explore the service innovation on the Lombok tourist village industrial cluster as well as to identify the emerging concept [14, 15, 16]. We follow replication logic to select the case study, employing an analytic induction approach to explain the phenomena observed by stipulating a set of causal linkage among the research constructs [15]. Initially, induction approach introduced by Znaniecki [17] for the best development logic

2 for theory development and testing 2 cross case studies [18]. This method generates hypothesis or propositions from the first case study. Thus from the first hypotheses inform the data collection from 2 the second case. Each hypotheses were compared to the data collected on the other cases, and if necessary reformulating hypotheses to take account from the first case. There are two selected tourist village industrial cluster as a target for the construction of this study. We selected the tourist village based on the following criteria: 1) They have been in operation for tourism village development 2) They have been acknowledging by the national and local government and also support the tourism village development on the case studies. They should involve community-based tourism for the tourist village development. Therefore, the selected cases were representative sample since not all tourist village industrial clusters have been operationalized and profitable and meet requirement above. Further, it also offered variations in the constructs being investigated [19, 20, 21].

### 2 C. Data Collection

This study depends on the three primary data sources: archive 2 in-depth interview, and focus group discussion. In-depth interviews were conducted among the internal and external informants to obtain general perspective about open innovation on the selected case studies. We had in-depth interview with our informants starting from ideas generation to industrialization, government and other institutions support and recommendation. We also had interviews with tourism experts to obtain brief understanding regarding the tourist village industrial cluster. This information was also supported with wide range of archives and focus group discussion, internal documents, websites and other secondary data analysis. We collected the data from 2018 and 2020. The first interviews took place on April 2018 and followed by in-depth interview and focus group discussion.

### D. Data Analysis

In our case studies, we emphasized on similarities at 2 differences when comparing the three case studies to identify emerging patterns and themes [14]. Graph and tables were used to map out and 2 compare several possible constructs at once [22]. From the emerging constructs and themes, we obtained relationship views between construct and contingency (Eisenhardt, 1989) [16]. Multiple case study allows several levels of analysis using the interviews, focus group discussion, archives data and observation [20]. Our study applied the framework Van de vrande et al [7] for 6 further discussion about open innovation. We clarified: 1) to what extent the Lombok tourist village industrial cluster have engaged open innovation activities. 2) Clarified actors involved on the Lombok tourist village industrial cluster. 3) Identified the formation of the Lombok tourist village industrial cluster in producing the open innovation practices.

## III. RESULT AND DISCUSSION

### A. Result

#### The Indonesian Tourist Village Industry

8 The Indonesian government have given the mandate to the three provinces: Bali, West Nusa Tenggara, and East

Nusa Tenggara for the tourism development corridor. These areas have become the leading sector for the tourism industry growth. Tourist village industry development program is one of the ministries of tourism agenda to boost domestic and international visitors in Indonesia. It offers socio and culture life binding to natural village views and local values. Each village have different uniqueness to satisfy the visitors. Meanwhile, the villagers are the main actors on the tourist village industry. They offer hospitality, local values and wisdoms to the visitors during unforgettable moment on the village. The key success factor is the readiness of the villagers to be involved on the tourist village industry. The local government supports the ministry of tourism program with the tourist village decree. Meanwhile tourism care takers (POKDARWIS) managed the tourist villages as one of the business unit of the village enterprise. The major share of the village enterprise owned by the village government. Thus the village government invested some amount of money from the village budget. When the business is growing, the Pokdarwis enjoys some profit and re-allocate the profit for re-investment on the tourist village attractions, amenities and contribute some profit to the village government.

Another program to support tourist village industry from the ministry of tourism is called a home stay program. The purpose of the program is to invite the tourists who like to spend couple days on the village while enjoying socio-culture life and values. This might attract the tourists in term of experiencing to be a villager with different theme. On the other side the villagers have opportunities to earn money from providing the home stay at their house. The villagers might build the new home stay for the tourists on their land or they provide one separated room for the home stay purpose. The villagers might cook the local dishes and the tourists learn how to cook. This might create another opportunities for a cooking class. Experiencing the cooking class on the middle of the rice field is another service which is offered to the tourists. Experiencing to be like farmer, fisherman, and other profession on the village could be another tourist's packages. Thus most elements on the village involve on the tourist village industry and create multiplier effects. The villagers are the main actors who enjoy the tourist village cash flow and other benefits. The tourist village industry should be integrated to the mega project Mandalika as buffering village to support the Mandalika project.

The central government has a great concern to develop tourism beyond Bali. The purpose is to create the new regional economic growth similarly to the concept creating "the New Bali". Lombok is located next to Bali, therefore, the mega project of Mandalika was established in Lombok. It is also called the special economic zone "Mandalika". It was elected to be the special economic zone since it has factor conditions. The beautiful panorama with clean beach water and the white oval sand surrounded with the beautiful green hill makes it perfect to be the tourist center in Lombok. However, lack infrastructure on the tourist destination affects minimum number of visitors. The central government have invested much money for better infrastructure to the Mandalika accessibilities, airport



railway, and others to attract investors from many different countries. Many hotel investors have been working on the project site with many suppliers to pursue project deadline. Competition with hotel industry will absorb the local labors and train them to produce the better service. This makes another business appears on the regions and produce multiplier effect with their business ecosystem. Another investment to support the Mandalika project is a Moto GP industry. Moto GP arena project has been starting since 2018 to complement the mega project "Mandalika" to boost the domestic and international visitors. The French investor initiated the moto GP arena project located on the mega project Mandalika. This will create another business ecosystem and opportunities. The Lombok tourist village industry should play their role to support the tourism ecosystem for its competitiveness

### **The Setanggor tourist village industrial cluster**

The Setanggor tourist village is located in central Lombok. It is about 20 kilometers away from the capital city of West Nusa Tenggara Province. The village is very closed to the airport approximately 10 minutes riding motor bike and about 15 kilometers to the *Mandalika* tourism zone. It is easy to access the village with better road infrastructures. Universities and other higher education institutions such as POLTEKPAR (*Politeknik Negeri Pariwisata*) "the biggest tourism academy managed by the ministry of tourism" and STP (*Sekolah Tinggi Pariwisata*) Mataram "the Mataram tourism academy" might support the *Setanggor* tourist village industry development. Meanwhile, University of Mataram supported the village through research activities and allocating KKN (*kuliah kerja nyata*) program referring to student's community service. The group of students from many different diciplines applied their knowledge to support the village. The *Setanggor* tourist village propose the halal tourist village industry concept. The village provide the halal food and drinks. The halal concept is also applied when you decide to stay some nights in the village. It means the married couple is halal and welcome to stay and sleep together in one room while unmarried couple should be in separated room. The sexy clothes categorized non-halal customs so that they should be covered by the tenun craft and scarf made in *Setanggor* village.

The history of the *Setanggor* tourist village explained by our interviewee "Initiator of the *Setanggor* tourist village":

"I saw the *Setanggor* village has many potentials such as art and culture, local wisdom, and beautiful nature in 2016. I was a chair of the Indonesia Islamic tourism for the halal tourist village association in west Nusa Tenggara province. We got the program of sharing basic needs on Friday to the poor. We came door to door to *Setanggor* villagers and surrounding. We were quite familiar to the villagers and saw the village potential to be the tourist village. Thus, we initiated the meeting about how *Setanggor* transforms to be the tourist village and its benefit with religious leaders, youth, and *Setanggor*'s stakeholders. Most villagers agreed to transform the *Setanggor* village to be the tourist's village. What do we do?"

Issues related to be the tourist village are varying. Most villagers were agreeing while some others disagree. According to the board of tourist promotion agency of central Lombok:

"There were so many complains to be the tourist village for the first time. Most villagers thought many tourists carry drugs and narcotics and drink alcohol. Meanwhile, the sexy dressed will affect the youth and it will affect our own culture by generations. The explanation of the importance "*awik-awik*" or (informal laws agreed by the villagers) is part of the solution. Therefore, the concept of the Halal tourist village was given in *Setanggor* village. Further Lombok has been known to be the world best halal tourism".

Based on the information above it might conclude that the halal tourist village concept was proposed to capture the moeslem market from middle east countries. It was quite relevant where Lombok was inaugurated as the winner of halal tourism in the world in Abu Dhabi, 2016. The village stakeholders and villagers are the most important aspect to be involved. Communication among stakeholders matters a lot for building halal tourist village industry on the *Setanggor* village. Informal approach with sharing basic needs to the poor is a key success factor of having good communication with the village stakeholders. Thus design program for tourist packages can be discussed and executed. Further explanation about the concept and products offered on the *Setanggor* village were also told by the informant on April 2019:

"Halal tourism means excellent service. We need to train the villagers for welcome smile to the tourists and show them its part of the traditions. If the international tourists come to the village, we welcome them with the tenun crafts made in *Setanggor*. They will be covered modestly to follow the standard operating procedures of the Halal tourist village industry. We explained to the international tourists this is a culture to wear *sarung* and they become happier. Thus, the halal tourist village launched in May 2016."

Another key success factor of implementing the *Setanggor* tourist village industry is consistently promoting the halal tourist village concept which is agreed among stakeholders and villagers. Meanwhile explaining the concept of halal to the international tourists and the logic reasons behind the activities in the village is very crucial to satisfy the tourists. The integrated activities of providing the *sarung* made in *Setanggor* to the ceremonial welcome which benefiting the villagers who offer related product and services are valuable ideas to the villagers. They earned the money from the activities and enjoy the profit. It was told by the interviewee:

"The Lombok international airport is very closed to the *Setanggor* village for about 10 minutes drive with good accessibility. It is a plus point where tourists might come

to the village and enjoy tourist package offered. Previously, the *Setanggor* craft products support the *Sukarara* (Tenun craft industrial cluster). It is abit confusing at the beginning because they thought the tourist village industry is typical beautiful village, with less confidence, nothing beautiful here to be the tourist village. Having focus group discussion about the tourist village concept, they become open-minded. Tourist village industry is about the art and culture heritage, local values and wisdoms, hospitality which make them unique. The *Setanggor* village have the success story to be the champion of the art, drama, and *gamelan* where very young generations (5 to 10 years old) represent West Nusa Tenggara province for the art-performing at Jakarta”

Information above help us to understand the importance of the location and how infrastructure and accessibility support the success story of developing tourist village industry. Shifting from the common platform of supplying the *tenun* craft to *Sukarara* to be direct seller is another part of innovation activities. Thus, they are also performing *tenun* processing activities where tourists might learn directly from the *tenun* makers. On the other side, changing paradigm of the halal tourist village concept need technical supports from many stakeholders. Gradually they would be open-minded and find the path where to go. In order to manage the tourist village industry, the *POKDARWIS* (tourism caretakers) members were elected from the native *Setanggor* villagers. The elected chairman of *POKDARWIS* explained us about the *Pokdarwis* in detail.

“The *POKDARWIS* Sekarteja Mertakmi was established in June 2016. We propose the concept of Halal tourist village based on the agreement with stakeholders. The concept is free alcoholic drinks and use *sarung* made in *Setanggor* village to enjoy the attractions offered on the village. We use *awik-awik* (informal tradition laws) to regulate standard operational procedure. There are about 38 members and we recruit head of sub-village where two of them reject to participate. *Pokdarwis* was supported by 14 local guide in the village. They were trained for upgrading English skills by PT ITDC (Indonesia Tourism Development Centre) who managed the mega project *Mandalika* to run the tourist village program. There are about 14 tourist packages which is potential to be the tourists packages: a) Cassava garden offers harvesting cassava and grill them alone with the *Setanggor* black coffee on the middle of cassava garden. b) Agro tourism offers harvesting seasonal fruit such as the dragon fruit, melon, pineapple on the garden. c) art-culture lesson offers tourist to learn art, *gendang belek* and *gamelan* music instruments in art-house supported by PT ASDP (the national state enterprise) with the total of Rp 350, 000,000. d) Ritual tourism offers *Raden Kekah* cemetery who spread Islam beliefs for the first time in Lombok. We should climb upstairs for about 999 stairs supported by ministry of village”. e) Grow and harvest rice on the rice field. f) Lunch on the middle of rice field. g) Recite and study al-quran on the middle of

rice field. h) life of Islamic boarding school (*pesantren*), *ingendeng api j) jambek and mereweh, etc”*

Based on the information, *Pokdarwis* had external networking and participation with many different institutions. They supported *pokdarwis* in term of capacity building, English skills, and other skills to manage the tourist village. Other institutions also participated to support the *pokdarwis* with facilities and infrastructure needed to accelerate the village. Their products and services are produced from the native local daily life of the *Setanggor* village with many different activities to many different tourist packages. There is no intellectual properties produced based on the activities but they got strong knowledge and assistance from ministry consultants.

The informant also explained the developmet of the *Setanggor* tourist village industry as follows.

“The *Setanggor* village enterprise have some diversified business. There are 2 unit homestay supported by the ministry of village in 2018, tent and party equipment rental, water drink business, art shop, and cooperative. There are about 41 house unit offered by the villagers to be the homestay. If the villagers have the house with three rooms, two of them used for the family and another one room offered to be homestay. The *Setanggor* tourist village have the total of 82 house units to be offered with 104 rooms in 2018. Most of the *Setanggor* village guests were the International tourists from Russia, China, French, Sweden. Most of the guests were international guests who obtained marketing information from social media such as instagram, facebook and online travel agents such as booking.com, travel loka, RB & B. Collaboration with domestic and international travel agents from French and Hongkong were also another key success factor while the online travel agent and social media were the greatest contributors for the international visitors coming to the *Setanggor* village. Domestic and international universities and higher education institutions came to the village to support technical skill and study community based tourism in the *Setanggor* village such as university of Mataram, Kyoto university, Glasgow university, STP Bali, POLTEKPAR Lombok, STP Mataram”.

#### **The Mertak tourist village industrial cluster**

*Mertak* village is located in rural area but near to the mega project of the *Mandalika* tourism zone. The initial step of community-based tourism in the *Mertak* village has been known as the *Gunung Tunak* eco-tourism but it does not work optimal. The historical project started when the korea forest service signed momerandum of understanding (MOU) with the ministry of forest Republic Indonesia to promote international eco tourism trend in October 12<sup>th</sup>, 2013. The purpose of the MOU is to develop ecological protection and landscape for sustainable eco tourism. Secondly, promote community based eco-tourism beside Bali. Thirdly, sharing strategy related to eco-tourism management applied in the South Korea.

As one of the interviewee supplemented:

There are some countries in the world receive the grant to assist the community empowerment relate to the forest development. The grant will be allocated based on the community-based tourism. The development concept of the forest should involve communities surrounding the forest project. Based on the data and criteria set by the Korean government, Mertak village was chosen to meet the criteria. The MOU conclude two aspects of cooperation: upgrade human resource capacity of the local communities, the central and local government officers, and technical service unit officer and infrastructure development.

**Forming group**

The second step of the *Mertak* tourist village development is called forming group and capacity building. Managing the project of the *Mertak* tourist village industry in *Gunung Tunak* is a POKDARWIS (tourism care takers) concerned. There were about 88 members of *Pokdarwis Tunak besopoq* to manage the *Gunung Tunak* project.

As one interviewee indicated:

The *pokdarwis* members have been divided into some divisions: guide, handicraft, culinary, and butterflies. Corporate social responsibility programs have been allocated for 5 % from the gross sales to buy *sarung*. There is a social agenda to support the villagers. Many parties involve supporting the *gunung tunak* eco-tourism. They are *tenun* crafter, farmers, fisherman, stall shopper, schools, home stay.

As one informant noted:

The most important point to build tourist village is building community characters. On this stage, we should not think of money but how we ask communities to build a long process of building good characters. However, the villagers feel lack confidence to sell the tourist packages: hiking or soft tracking, biking, tourist sub-village.

This information explained most of the *pokdarwis* members and villagers have lack confidence with the tourist village products offered. Therefore, some other communities reject the new status of the village because of the cultural values consideration. Thus, *awik-awik* is used to solve the problems on the village.

TABLE I. HISTORY TUNAQ BESOPOK (FORMING GROUP)

Year	Activities
2013	Personal approach and share perception of forming group
2013-2015	Initiate group, group approach, share vision, group assistance
2016	Forming group, regular meeting, assistance
2015-2020	Achievements and reports
2018-2020	Tourist packages development

(Source: BKSDA, 2020)

**Tunak besopoq capacity building**

Capacity building have been done into three batch. The first batch of the capacity building is the first ecotourism management in 2015 followed by 25 people and held in South Korea. The second batch followed by 31 people in

2015 with the theme of butterfly’s conservation, handicraft and tenun hand waving in Lombok. The third batch followed by 16 people held in Korea. Number of training activities for the group of *tunak besopoq* were 16 trainings involved 312 people until December 2019.

TABLE II. TRAINING ACTIVITIES

Year	Completed Training
2015	<ul style="list-style-type: none"> <li>Eco tourism management (South Korea)</li> <li>Handicraft trainings</li> </ul>
2015	<ul style="list-style-type: none"> <li>Butterflies conservation</li> <li>Guiding technique</li> </ul>
2016	<ul style="list-style-type: none"> <li>General and leadership training</li> <li>Eco-tourism management</li> </ul>
2017	<ul style="list-style-type: none"> <li>Handicraft training</li> <li>Cullinary training</li> <li>Butterflies</li> </ul>
2017	<ul style="list-style-type: none"> <li>Interpretation skills</li> <li>Ecotourism management (South Korea)</li> </ul>
2018	<ul style="list-style-type: none"> <li>Intemship guiding and language skills</li> <li>Bench marking (Gili asahan eco lodge)</li> </ul>
2019	<ul style="list-style-type: none"> <li>Hospitality, restaurant and hotel management, chiropraxi training</li> <li>Asset management</li> </ul>

(Source: BKSDA, 2020)

**Strengthening institution capacity**

Strengthening institution capacity could be done into some ways. Firstly, technical assistance was given to the group every two weeks. Secondly, Discussion about training needs with local communities. Finally guiding the tourists to enjoy the *gunung tunak* ecotourism.

**Facilities and infrastructure development**

TABLE III. FACILITIES AND INFRASTRUCTURE DEVELOPMENT

No.	Facilities	Duration	Budget	Implementor
1	Connecting Street to the gate 370 meters and 10 meters wide	2016	BKSDA NTB (technical unit)	Public works, central lombok
2	Water networks from perempung to the gate 1900 M	2016	BKSDA NTB (technical unit)	BKSDA NTB (technical unit)
3	Building water pool	2016	BKSDA NTB (technical unit)	BKSDA NTB (technical unit)
4	Beringin tree seedling @ 2,000 trees	2016	BKSDA NTB (technical unit)	BKSDA NTB (technical unit)
5	Build ing information center	2016- completed	Korea forest service	KFS &PT KIFC
6	Building multi function auditorium	2016- completed	Korea forest service	KFS &PT KIFC
7	Parking area	2016- completed	Korea forest service	KFS &PT KIFC
8	Ground breaking	November, 2016		
9	Visitor center, multi function building, butterfly center, camping ground, trail track	2016-2017	KFS	PT. Tae Sung
10	Enrichment building and maintainance	2018	KIFC	KIFC

(Source: BKSDA, 2020)



KFS for Korean forest service KIFC for PT Korea Indonesia Forest Cooperation.

TABLE IV. SERVICE PRODUCTS

No.	Service Products
1	Camping ground: camping, camp fire, soft trekking, sailing
2	Mountain cycling: explore the untouchable tunak forest
3	Bird watching
4	Cliff jumping
5	Deer feed & Butterflies identification
6	Wellness and leisure

(Source: BKSDA, 2020)

**The Pijot tourist village industry cluster**

Pijot village is located in rural village at east Lombok where 60% of the area is a coastal area. Most population works to be the fishermen and related coastal works. Eco tourist village industry development started in 2019. They found high poverty level along the coastal area and tourism industry is part of the alternative solution. The first survey of the Pijot potential took place in 2019 with the Pijot head village. After the survey, *Muara Selayar* was chosen for the pilot project of the Pijot tourist village. Thus two groups of the student community service with different theme came and started the project to develop *Muara Selayar* project. The first team is a zero-waste team and the other team is a tourism. The students have their own programs to develop the region. They grew *bakau* trees along the *Muara Selayar* so that the fish ecosystem is getting better. When the student community service team finished their programs and continuous works done by the researcher team. Personal approach to the youth group had been done and introduced them about the concept of the Pijot tourist village industry with the pilot project in *Muara Selayar* point. Regular discussion about the Pijot tourist village industry took place in *Muara Selayar*. Pokdarwis was found in September 2020 to manage the Pijot tourist village industry. They create tourism attractions for bamboo rafting in *Muara Selayar*. The knowledge of assembling the boat is very useful for bamboo rafting attractions. The water cycling is another tourism attraction in *Muara Selayar*. While camping ground is other optional attractions. Thus, soft launching of the Pijot tourist village industry took place in September 20<sup>th</sup>, 2020.

Community service team used a national competitive funding of community service programs for tourist development. Using Universitas Mataram networks, the local government paid attention on the soft launching. Secretary of department of tourism West Nusa Tenggara Province came to the launching and gave a speech. Head of tourism department East Lombok regency came and gave a speech. Other guests from industry came to support the Pijot tourist village industry. PT Gudang Garam, PT *Selaparang* energy supported the launching with their CSR programs. Local media and electronic media also involved in promoting the tourist village. The launching was successful and the pilot project of *Muara Selayar* was noticed by the domestic tourists since the target market is a local and domestic market especially the next village population and the pijot local tourist population.

**B. Discussion**

The Lombok tourist villages have implemented open innovation activities to some degrees. The *Setanggor* tourist village and *Gunung tunak* ecotourism are the most active of open innovation activities. This might happen because they operated before the pandemic covid 19 when tourism industry was growing. On the other hand, the *Pijot* tourist village industry performed the least active open innovation activities since it was launched during pandemic covid 19 on September 20, 2020. The three villages have been developed by the government-university-industry-community-media partnership. Collaboration among these institutions supports open innovation activities. The government plays the most significant role to the tourist village development. Thus, government supported facilities and infrastructure to support the three tourist villages. The budget allocations relevant to the tourist village development have been spent for homestay program. Thus, the government have engaged other institutions to support the tourist village industry such as the state-owned enterprises, other domestic and international foundations, universities or other higher institutions, and international partners. These companies and institutions will support the villages from many different aspects. Further, Korean forest service and university of Mataram are the most successful intermediaries for *Gunung Tunak* ecotourism and *Pijot* tourist village industry cluster.

Based on the information above, open innovation activities could be analyzed as mentioned in Table V.

TABLE V. OPEN INNOVATION IN THE TOURIST VILLAGE INDUSTRY

Open Innovation	Setanggor Village	Mertak Village	Pijot Village
<b>Inbound Open Innovation</b>			
Customer Involvement	High customer involvement	High customer involvement	High customer involvement
External Networking	Social media, facebook, instagram, ITX, OTA, Poltekpar, STP, domestic and international tour operator, magazine, newspaper, electronic media	Facebook, instagram, other social media, University of Mataram, PT Pertamina, BKSDA, ITX,OTA, Korean government & companies	University of Mataram, local government, PT energi selaparang, facebook, instagram, local newspaper, local TV
External Participation	High participation- PT Angkasa Pura, PT ASDP, Ministry of tourism, ministry of village development, ministry of public works and public housing	High participation- The korean forest ministry, PT Pertamina, PT Baliminatama, PT Dinanda, PT Tabitha, PT Karya Pratama	Low participation- University of Mataram, Ministry of research and technology, local government, PT Gudang garam, Antangin, freshcare
Outsourcing R&D	Consultants of some ministries	Korean government	University of Mataram
Inward IP licensing	None	None	None

Outbound open innovation			
Venturing	Local government	Korean government	University of Mataram, Ministry of research and technology
Outward IP licensing	None	None	None
Employee involvement	High	High	High

(Source: Data proceed, 2020)

Based on the table above, there are so many institutions involve on the cluster development. Therefore, open innovation activities on the Lombok tourism village industrial cluster could be seen on the figure below

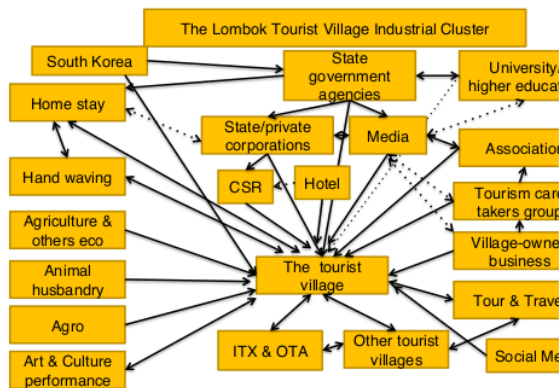


FIG. 1. The Lombok tourist village industrial cluster

#### IV. CONCLUSION

This research try to explain in what extent the Lombok tourist village industrial cluster has engaged open innovation activities. Inbound open innovation is much more dynamic than outbound open innovation. Inbound open innovation is the greatest contributor. External networking and participation are the most dynamics than others. On the other hand, outward intellectual property licensing and inward intellectual property licensing are none on the cluster. Meanwhile outbound open innovation has been applied on the tourist villages. Venturing and employee involvement were also dominant on the tourist village industry development. Open innovation activities on the Lombok tourist village industrial cluster could be identified from new types of relationship on the cluster as seen on the figure 1. This study has some theoretical contributions derived from exploratory case study of open innovation practices into three tourist villages. This study builds on the prior study developed. This study confirmed open innovation practices also occurred in small-and-medium-sized enterprises using cluster approach mentioned by Porter [23]. This study filled the gap that open innovation practices has been researched on the multinational corporations and it rarely found in small-and medium-sized enterprises

The above finding emphasized the importance of community readiness to accept the tourism industry. The

village stakeholders are the main key to campaign the concept of the tourist village industry. Sharing vision with the village stakeholders would generate similar perceptions to run the successful tourist village industry programs and packages. Thus, some barriers to success could be eliminated with awik-awik

Since it was mentioned in the master plan of the tourism industry located in Bali, NTB, NTT, therefore, the multiple case study should represent the three provinces. However, this study focused on the multiple case studies of the Lombok tourist village industry. Multiple case studies based on the coverage area have become the limitation on the research. Based on the research finding, open innovation activities could be explained based on the inter-relationship among institutions on fig 1. The study of networking among institution and knowledge sharing model are very potential for the future research.

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