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Innovation Ecosystem for SMEs in the Creative Industry

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ABSTRACT

Knowledge is an important factor in creating innovation. To obtain knowledge, SMEs should collaborate with community networks, universities, and the government, which is referred to as an innovation ecosystem. Most of the creative industry players in Indonesia are SMEs. The objective of this study is to analyze the effect of learning orientation toward networking capability and collaboration with universities, and the role of government support in developing an innovation capability. The respondents consisted of 156 owners/managers of SMEs in the creative industry in Bandung. To test the hypotheses, structural equation modelling was used. The results show that learning orientation has a significant effect toward networking capability and collaboration with universities in developing an innovation capability. However, government support has no significant effect in moderating the influence of networking capability and collaboration with universities toward innovation capability. The most important implication of the research is that SMEs in the creative industry should strengthen their networking capability to improve their innovation capability.

JEL Classifications: D83, D85, L14, O31

Keywords: learning orientation; networking capability; SME; creative industry; innovation capability

I. INTRODUCTION

Knowledge and creativity play an important role in the creative economy era. Cunningham (2008) defines a creative economy as something that creates value through an economic process involving a complex production process which has an identity and adaptation based on creativity. A creative economy consists of a cultural and creative industry located in creative cities (United Nations Educational Scientific and Cultural Organization, 2013). The creative city concept was established from a belief that culture is an important part of city development (Sepe, 2013). A cultural industry is an industry that uses local culture as its value in creating a product. A creative industry is an industry that is based on creativity, skills, and unique talent from human resources in creating job opportunities and welfare through intellectual property utilization and normally related to a local champion of culture (Cunningham, 2002; Department of Cultural and Media and Sport, 1998; Galloway and Dunlop, 2007; Hesmondhalgh and Pratt, 2005).

Bandung city is part of the Indonesia Creative Cities Network (ICCN). It has also been a member of the UNESCO Creative Cities Network (UCCN) since 2015 as a global city of design, together with 179 other UCCN creative cities from 72 countries in the world. Bandung Creative City Forum (BCCF) is the first creative city forum in Indonesia, and it was established in 2008 by 45 communities and individual creative industry entrepreneurs. Bandung city has a youth urban lifestyle, as there are 105 universities and higher education institutions in the city (Badan Pusat Statistik Kota Bandung, 2017). Based on the concept of cities as collaborative innovation platforms (Tukiainen et al., 2015), the stakeholders of the collaborative innovation platforms are industries, universities, the government, and the communities that perform as the actors of innovation. The process of collaborative innovation in Bandung city was developed to accelerate the growth of the creative industry in line with the strategic goal of Bandung city for economic growth and social development (Pratiwi and Riyadi, 2015).

Some previous studies mentioned the role of the government for SMEs in performing innovation (Carayannis and Grigoroudis, 2016; Obaji and Olugu, 2014). Other studies on SME innovation explained about the collaboration of SMEs with universities or higher education to build SMEs' innovation capabilities (Carayannis and Grigoroudis, 2016; de Zubielqui et al., 2015), and other literature discussed about SMEs' community networks (Iturrioz et al., 2015; Mitra, 2000). Lloyd-Reason, Muller, and Wall (2002), on the other hand, explored the role of the government in making policies for education to support SMEs' innovations. Mitra (2000) studied about the role of community networks as learning sources in obtaining knowledge. In addition, Valkokari and Helander (2007) examined the knowledge sharing process, collaboration, and competition among SMEs in a community network. From those studies, it can be concluded that studies about innovation in SMEs are mostly for single or multiple relationships, or about the collaborations between two or among three actors. However, there are limited studies involving four actors namely, SMEs, universities or higher education and research institutions (which will herewith be referred to as universities), the government, and community networks in conducting collaboration in developing innovation capabilities (Chesbrough, 2003; Zeng, Xie, and Tam, 2010).

The collaboration among the four actors is called an industry innovation ecosystem, and the innovation process of SMEs using both their internal resources and external resources (university, government, and community network) is called open

innovation. This condition creates a potential gap to conduct a study about SMEs' innovation ecosystem in a creative industry.

The aim of this research is to gain insights regarding open innovation in SMEs in the innovation ecosystem of a creative industry in Bandung, Indonesia, by analyzing the effect of learning orientation toward networking capability and collaboration with universities, and the role of government support in developing innovation capability. Based on data from the Indonesian Creative Economy Body (BEKRAF) and the Indonesian Statistics Bureau (BPS), most of the creative industry players in Indonesia are classified as SMEs (92.56% of them have annual incomes of less than or equal to IDR 300 million or about USD 20,000 (Utoyo and Sutarsih, 2017). However, it does not mean that they have a lack of knowledge and creativity. The expected contributions of this empirical research are to enrich the open innovation concept in the creative industry innovation ecosystem, and to provide recommendations for the development of the innovation ecosystem model in the creative industry in Bandung and Indonesia overall.

Calantone, Cavusgil, and Zhao (2002) stated that a learning orientation is an active process in the company to create new things using knowledge to gain a competitive advantage. This means that the innovation process needs knowledge which can be acquired by a company or organization through learning orientation activities (Calantone et al., 2002; Jiménez-Jiménez and Sanz-Valle, 2011). Furthermore, if employees in the company conduct internal knowledge sharing, the company can have acquisitions, transformation, and the exploitation of new knowledge which can produce sustainable innovation (Nonaka, 1994; Jiménez-Jiménez and Sanz-Valle, 2011). Although learning orientation is considered to be very important for the innovativeness of companies, studies about learning orientation as a fundamental factor for the sustainability of SMEs are still rare (Hakala and Kohtamäki, 2011; Wales et al., 2013; Altinay et al., 2016). Learning can be seen from two perspectives: from a human perspective and learning as a system (non-human), and there is still a debate about this issue among academicians (Altinay et al., 2016). Thus, this situation creates a potential gap in the study of learning orientation in SMEs in the creative industry, and in this research, learning orientation is seen from the human perspective.

Based on the two potential research gaps mentioned above, the research questions then are: (1) What is the role of learning orientation in the process of building innovation capability in SMEs in the creative industry ecosystem? (2) What are the contributions of a university as an external factor in building innovation capability? (3) What are the contributions of a community network in building innovation capability? (4) What is the role of the government in the process of building innovation capability?

The findings show that the learning orientation of SMEs in the creative industry is the driver behind innovation capability in the innovation ecosystem. Furthermore, learning orientation, networking capability with the business community, and collaboration with universities affect the innovation capability significantly, while government support does not show a significant role in developing innovation capability.

II. LITERATURE REVIEW and HYPOTHESES DEVELOPMENT

A. Literature Review

Traditionally, companies use their internal resources of knowledge to develop their products or businesses; it is called closed innovation. Introduced by Chesbrough (2003), the open innovation concept suggests that companies should use both internal and external knowledge to develop their innovation capabilities to gain a competitive advantage in the market. There are two types of open innovation (Chesbrough and Crowther, 2006): inbound open innovation, which is transferring and acquiring external resources (technology, ideas, or knowledge) to a company such as an R&D contract, university collaboration, in-licensing, mergers and acquisitions, and an outbound open innovation, which is transferring the internal resources to be commercialized by external parties such as out-licensing and joint ventures. Enkel, Gassmann, and Chesbrough (2009) introduced the third type of open innovation, namely couple innovation, which is the combination of inbound and outbound innovations. By conducting the innovation process, companies interactively involve many parties, and the innovation process does not run linearly but as a system (Lundvall, 1992), and in a network manner (Powell and Grodal, 2006).

Studies about open innovation are mostly conducted in large technology-oriented companies (Chesbrough, 2003), and not many researchers have studied the implementation of this concept in an SME setting (Christensen et al., 2005; Henkel, 2006). According to Hossain and Kauranen (2016), there are six themes in open innovation research on SMEs, namely searching strategies and networking, collaboration, transforming SMEs from a closed to an open approach, open innovation performance in SMEs, knowledge development, and challenges of implementing open innovation. The open innovation concept (Chesbrough, 2003) emphasizes relations with a variety of institutions to perform innovation (Hossain, 2013). Conceptual and empirical studies about universities to support SMEs' innovations have been done by many researchers (Vaaland and Ishengoma, 2016). The engage scholarship concept emphasizes the importance of academic research, which is related to problem solving in the community (Agrawal, 2001; Simba and Ojong, 2017). Carayanis and Grigoroudis (2016) stated that a university as a research center can transfer useful knowledge for innovation. Etzkowitz and Leydesdorf (2000) emphasized the collaboration between three entities (university-industry-government) to create innovation, which is called the triple helix concept. Van Hemert, Nijkamp, and Masurel (2013) identified external parties which can support the innovations of SMEs, such as a business incubator, research institution, business association, university, and government institution.

SMEs have five constraints to perform innovation (Purcarea et al., 2013), namely, a lack of resources and access to financial institutions, a dearth of skills in innovation and management, less public procurement to foster innovation, an absence of skills to manage intellectual property, and a weakness in doing community networking and collaborating with external parties. Thus, SMEs need external resources in developing innovation capabilities to obtain knowledge as the basis of innovation. Furthermore, in creative industries in particular, SMEs should develop their innovativeness as it is the fundamental element to be an innovative organization (Saunila and Ukko, 2012).

B. Hypotheses Development

The research model is derived from the industry innovation ecosystem concept (The Organisation for Economic Co-operation and Development, 1999) and the open

innovation concept (Chesbrough, 2003). According to OECD (1999), the industry innovation concept involves the industry innovation ecosystem concepts holistically such as the National Innovation System (NIS) as an institution and actor of innovation which influences the creation, development, and distribution of innovation (Mowery and Sampat, 2004). The triple helix concept was adopted to illustrate the collaboration among industry-university-government (Etzkowitz, 2002). Then the quadruple helix concept includes the community as an important actor in developing industry innovation capability (Carayannis and Grigoroudis, 2016). Based on the NIS concept (Mowery and Sampat, 2004) and quadruple helix concept (Carayannis and Grigoroudis, 2016), this empirical study involves four actors of innovation: the industry, university, government, and community network as a creative industry innovation ecosystem.

In this research, the open innovation concept that involves the industry, university, government, and community network is classified as an inbound open innovation process (Chesbrough, 2003). The internal resource in this study is the learning orientation of SMEs as a part of organizational learning, and the external resources are the community network of SMEs, the universities as the sources of knowledge to do innovation, and the government which acts as a moderator in supporting and facilitating the collaborative innovation among SMEs, universities, and the community networks. The novelty of this study is to build the framework of an innovation ecosystem process with the learning orientation of SMEs as the driver of networking capability, collaboration with universities, innovation capability, and government support as the moderator in building innovation capabilities of SMEs in a creative industry.

1. Learning Orientation and Networking Capability

Organizational learning as human resources is the main source in creating value and innovation (Casey, 2005). SMEs can obtain knowledge through their networking activities with SME business communities. Networking capability is the organizational capability and its competence to explore and exploit network resources to create market value for products and services (Mu, 2013). Learning orientation is fundamental for an organization in performing innovation through its external networking activities (Jiménez-Jiménez and Sanz-Valle, 2011). Previous studies revealed that when an organization can focus on learning through external networking to adapt to environmental threats and opportunities (Salim and Sulaiman, 2011), it can increase their competitiveness and performance (Argote and Miron-Spektor, 2011; Jiménez-Jiménez and Sanz-Valle, 2011). It can be concluded that the learning orientation of the organization is the driver to build networking capability (Walter et al., 2006; Paladino, 2008; Mu and Di Benedetto, 2012). Thus, the following hypothesis is proposed:

H1. The learning orientation of SMEs in a creative industry has a positive influence on networking capability.

2. Learning Orientation and Collaboration with Universities

A university is a source of new knowledge, and academic research has great effects on

productivity in research and development (Cohen et al., 2002). Academicians have an important role in developing knowledge and technology in the open innovation process in a creative industry. Academic research will be translated into both tacit knowledge and explicit knowledge (Nonaka et al., 2000), which can contribute to the development of innovation capability for SMEs in a creative industry. Learning orientation as a part of organizational learning encourages SMEs to build networking and collaborations with universities (Real et al., 2014; Dada and Fogg, 2016). Collaborating with universities is an effective tool to improve knowledge in the open innovation era and in dynamic business competition (Chesbrough, 2003; Liao et al., 2007). In an external dynamic environment, it is strongly believed that an organization with a learning orientation basis will build relationships and collaborations with universities (Neely et al., 1995; Liao et al., 2007). Thus, the following hypothesis is offered:

H2: The learning orientation of SMEs in a creative industry has a positive influence on collaborations with universities.

3. Learning Orientation and Innovation Capability

Innovation capability is the ability to continuously transform knowledge and ideas to create a product, service, or system for the sake of an organization and its stakeholders (Lawson and Samson, 2001). According to Harkema (2003), innovation is a process to obtain new knowledge from the need to find a solution for a commercial purpose, and it requires the process of acquisition, distribution, and utilization of new knowledge (Calantone et al., 2002). A recent study mentioned that learning orientation has a positive effect on the development of innovation capability, which is a unique innovation process producing a sustainable competitive advantage. Therefore, it can be concluded that learning orientation has a direct effect on innovation capability (Jiménez-Jiménez et al., 2014). Thus, the following hypothesis is suggested:

H3: The learning orientation of SMEs in a creative industry has a positive influence on innovation capability.

4. Networking Capability and Innovation Capability

Having a network is considered as the main issue in innovation research (Chesbrough, 2003; Gronum et al., 2012). Innovation is seen as a process created from the interactions of many different actors (Zeng et al., 2010). The importance of a network as social capital in the innovation process for SMEs has already been confirmed by various studies (Ahuja, 2000; Rhee, Park, and Lee, 2010; Zeng et al., 2010). Some previous studies about networks mentioned that making an effort to be open in a network will be very useful in creating innovation in a company (Laursen and Salter, 2006). Furthermore, some studies discovered that companies which have fewer capabilities in business networking (including building, maintaining, and utilizing relationships) have potential constraints in their growth (Ritter and Gemunden, 2003). Thus, the following hypothesis is put forward:

H4: The networking capability of SMEs in a creative industry has a positive influence on innovation capability.

5. Collaboration with Universities and Innovation Capability

A university, as a center of knowledge and research, has a strategic role which can be used by the industry as the basis of innovation. This issue is supported by the triple helix concept (Etzkowitz, 2002), which improves the connections among three actors in innovation development through relationships among industry-university-government. From the innovation research perspective, it is found that higher education and research institutions can help SMEs in improving their effectiveness (Etzkowitz and Leydesdorff, 2000; Roos et al., 2005). According to Menzies (2004) as well as Mowery and Sampat (2004), the university plays an important role in creating ideas and innovations based on knowledge. Collaborating with universities is considered very important as shown by the increasing number of joint research projects (Hall et al., 2001) and publications between industries and universities (Calvert and Patel, 2003). An organization that focuses on learning and knowledge needs to develop networking with business communities and collaboration efforts with universities to build the innovativeness of the organization (Kirkman and Phillips, 2011; Perkmann et al., 2011). Thus, the following hypothesis is proposed:

H5: Collaboration with universities and SMEs in a creative industry has a positive influence on innovation capability.

6. Government Support and Networking Capability - Innovation Capability

The government is a public service which has an important role in promoting an innovation process (Link and Scott, 2010). The government can provide facilities to perform transformation and technology development through establishing clear standards and policies but still allowing flexibility for industries to conduct their innovation activities (Ashford, 2000; Bossink, 2002). In general, the government can support a creative economy and a creative industry by making regulations and policies for creative industry entrepreneurs, such as developing regulations and infrastructure for innovation (Lopez-Claros, 2006). First, the government supports SMEs to increase their quality of business (Doh and Kim, 2014). Second, the government encourages SMEs in overcoming their lack of technical managerial skills and financial access (Minniti, 2008). Third, the government supports SMEs by connecting with other innovation actors in building an innovation network (Nguyen and Nguyen, 2013). Fourth, the government supports SMEs by providing financial support. Fifth, the government promotes SMEs by establishing legal status and intellectual property protection (Doh and Kim, 2014). Based on those previous studies and their explanations, the government has an important role in supporting the relationships between the networking capability of SMEs with business communities and also between the collaboration of SMEs with universities (Etzkowitz and Leydesdorff, 1998) in developing innovation capability. The government stimulates the relationship of SMEs in a community network, and the stronger the role of the government is in building the network among industries, the stronger the innovation process is in SMEs (Chesbrough and Crowther, 2006; Mitra, 2000). In this case, it can be seen that the government has an important role in facilitating and moderating the

innovation process. Thus, the following hypothesis is put forward:

H6: Government support positively moderates the influence of networking capability towards innovation capability.

7. Government Support and Collaboration with Universities - Innovation Capability

The triple helix innovation model explains that universities develop business incubations to support SMEs' innovations (Etzkowitz, 2002), and this process is supported by government policies to increase knowledge for business entrepreneurs through strengthening the collaboration efforts between industries and universities in conducting research (Simard and West, 2006). The government facilitates universities to be the center of technology and innovation for SMEs (Etzkowitz and Leydesdorff, 1998). Thus, the following hypothesis is proposed:

H7: Government support positively moderates the influence of collaboration with universities towards innovation capability.

III. RESEARCH METHODOLOGY

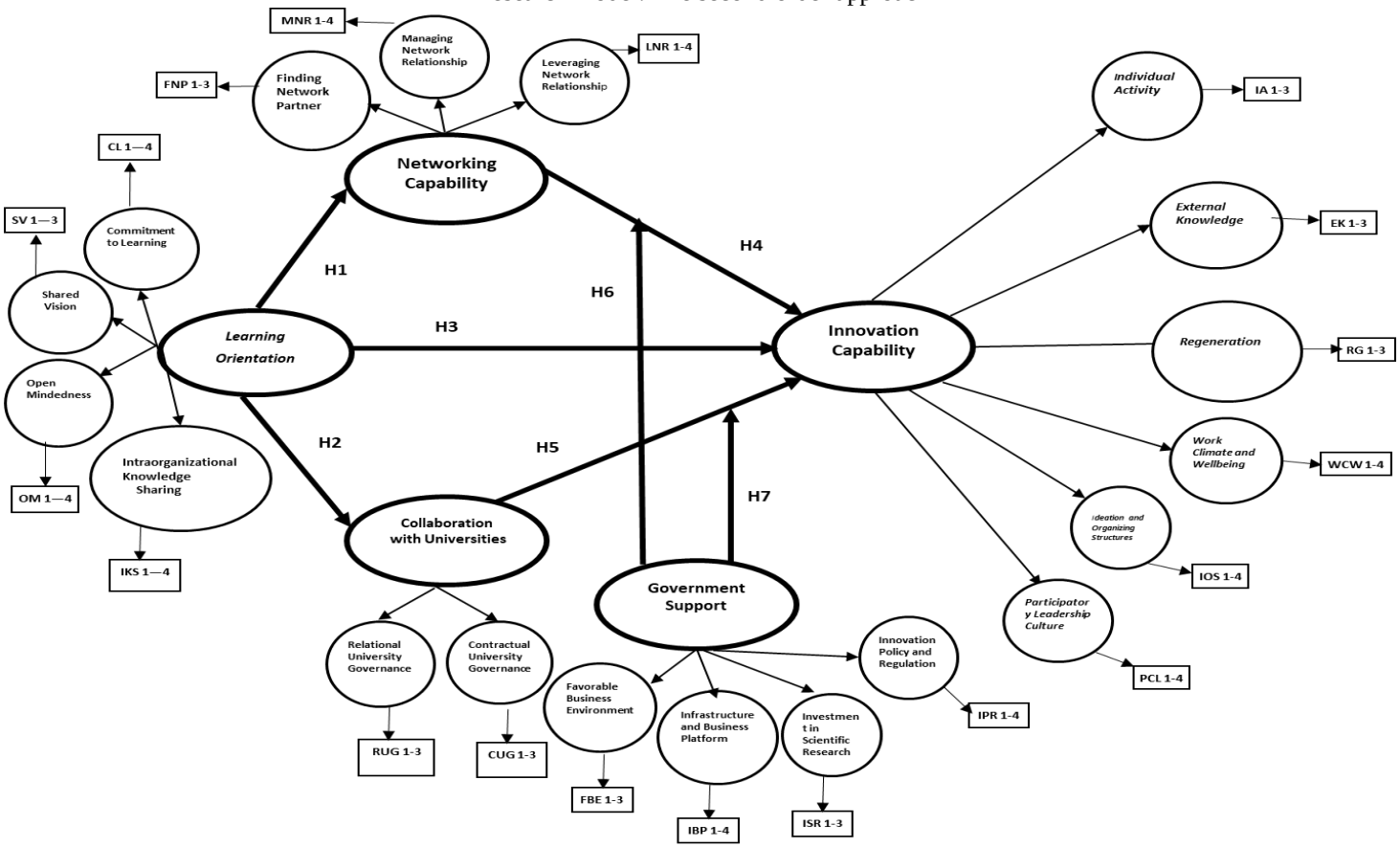
A. Unit Analysis, Population, and Target Sample

The context of this research was creative industries in Bandung, Indonesia. The unit analysis was SMEs in the creative industry (subsector of culinary, fashion, craft, and design) in Bandung. Based on data from the Agency of SMEs and Cooperatives (Dinas Koperasi dan UMKM) of Bandung municipality, the population of SMEs in the creative industry in Bandung was around 1,500. This research used a non-probability sampling or purposive sampling method (Malhotra, 2008). Screening questions were applied, and only SMEs which had collaborations with universities, were involved in network communities, and received support from the government were included in this research. According to Hair et al. (2013), the minimum sample size required for a research model with 7 constructs or less, modest communalities (0.5), and no under identified construct, is 150. The minimum sample size recommendation for structural equation modelling based on a study by Anderson and Gerbing (1984) is 100. Thus, the target minimum sample size for this research was 150 respondents.

B. Operationalization of Research Variables

Figure 1 shows the research model, which consists of 5 research variables: learning orientation, networking capability, collaboration with universities, innovation capability, and government support. These research variables were expanded further by adding measurement dimensions as well as indicators.

Figure 1
Research model: The second order approach



The definitions of the research variables and their dimensions are listed in Table 1.

Table 1
Variables, dimensions, and indicator codes

Variables	Dimensions	Number of Indicators	References
Learning Orientation	Commitment to learning	4 (CL1-CL4)	(Calantone et al., 2002);
	Shared vision	3(SV1-SV3)	(Suliyanto & Rahab, 2011)
	Open-mindedness	4(OM1-OM4)	
	Intra-organizational knowledge sharing	4(IKS1-IKS4)	
Collaboration with Universities	Relational university governance	3(RUG1-RUG3)	(Garcia-Perez-de-Lema et al., 2017);
	Contractual university governance	3(CUG1-CUG3)	(D'Este & Patel, 2007); (Bruneel et al., 2010)
Networking Capability	Finding network partners	3(FNP1-FNP3)	(Mu & Di Benedetto, 2012)
	Managing network relationships	4(MNR1-MNR4)	
	Leveraging network relationships	4(LNR1-LNR4)	
Government Support	Favorable business environment	3(FBE1-FBE3)	(Patanakul & Pinto, 2014);
	Infrastructure and business platform	3(IBP1-IBP3)	(Doh & Kim, 2014)
	Investment in scientific research	3(ISR1-ISR3)	
	Innovation policies and regulations	4(IPR1-IPR4)	
Innovation Capability	Participatory leadership culture	4(PLC1-PLC4)	(Saunila et al., 2014);
	Ideation and organizing structure	4(IOS1-IOS4)	(Saunila, 2016)
	Work climate and well-being	4(WCW1-WCW4)	
	Regeneration	3(RG1-RG3)	
	External knowledge	3(EK1-EK3)	
	Individual activity	3(IA1-IA3)	

IV. RESULTS AND DISCUSSION

A. Data Collection and Research Sample Data

The data collection for the study was obtained through a survey using questionnaires, which were distributed in Indonesia. The 200 questionnaires were distributed to SMEs in the industry subsector of culinary, fashion, craft, and design, which had passed the screening questions, whose names and addresses were from the Agency of SMEs and Cooperatives of Bandung municipality and BCCF (Bandung Creative City Forum). The questionnaires were distributed by direct visits to respondents, or some respondents were

invited to complete the questionnaires in certain events. Out of 200 distributed questionnaires, 180 were completed (90% response rate). Then, these questionnaires were examined for their content and if necessary were verified by calling the respondents. The process generated 156 valid questionnaires from 156 SMEs (1 respondent per SME), which were then used as sample data for this research.

B. Profile of Respondents and SMEs

The profile of respondents and SMEs in this research is shown in Table 2 (the highest percentage for each characteristic is printed in bold).

Table 2
Profile of respondents and SMEs (N=156)

Characteristic	Number	Percentage
1. *Ages of respondents*		
< 30 years	49	31.4
30-40 years	**56**	**35.9**
41 - 50 years	46	29.5
> 50 years	5	3.2
2. *Gender of respondents*		
Male	66	42.3
Female	**90**	**57.7**
3. *Education of respondents*		
Junior high school or below	2	1.3
Senior high school	48	30.8
Bachelor's Degree	**83**	**53.2**
Master's Degree or above	23	14.7
4. *Position of respondents*		
Manager	**94**	**60.3**
Owner	27	17.3
Owner and Manager	35	22.4
5. *Ages of firm*		
< 2 years	22	14.1
2 - 5 years	**86**	**55.1**
> 5 years	48	30.8
6. *Revenue/year*		
≤ IDR 300 million	**117**	**75.0**
> IDR 300 million - 2.5 billion	34	21.8
>IDR 2.5 billion - 50 billion	5	3.2
7. *Subsector of Creative Industries*		
Culinary	44	28.2
Fashion	**57**	**36.5**
Craft	36	23.1
Design	19	12.2

Note: 1 USD = IDR.15,000

C. Data Analysis and Hypotheses Testing

A data analysis was conducted by using structural equation modelling (SEM) with a sample size of 156. SEM was used because, first, structural equation modelling provides an appropriate and the most efficient estimation techniques for a series of separate multiple regression equations estimated simultaneously (Hair et al., 2013). Second, the variables in the research model are latent variables that cannot be measured directly but through their indicators or observed variables. This is known as a measurement model in SEM. Third, the relationships among latent variables are quite complex in the form of multiple interrelated dependence relationships or simultaneous equations. This is known as a structural model in SEM (Hair et al., 2013; Hoyle, 2016). Fourth, structural equation modelling (SEM) depicts relations among observed and latent variables in various types of theoretical models, which provide a quantitative test of hypotheses by the researcher. The data analysis follows a procedure called a "two-step approach" from Anderson and Gerbing (1988). This procedure includes an analysis of the measurement model and an analysis of the structural model.

1. Measurement Model

An analysis of the measurement model aimed to evaluate the validity and reliability of the measurement model. Referring to Figure 1 and Table 1, it can be seen that there are 5 measurement models of research variables: learning orientation (LO), collaboration with universities (CU), networking capability (NC), government support (GS), and innovation capability (IC). These measurement models are second order measurement models or a second order confirmatory factor analysis (2^{nd} Order CFA). Each 2^{nd} Order CFA consists of first order measurement models which represent the relation between a dimension and its indicators (1^{st} Order CFA), and second order measurement models which represent the relation between a research variable and its dimensions.

An evaluation of the validity of indicators on their dimensions (1^{st} Order CFA) is executed by testing the standardized factor loading (SFL) of these indicators. If the SFL of an indicator is equal to or higher than 0.50, the indicator is considered as valid. If the SFL is less than 0.50, then the indicator is considered as not valid and excluded or dropped from its measurement model. Out of 66 indicators in Table 1, only 2 indicators had an SFL of less than 0.50; thus, they were excluded from the measurement model. The remaining 64 indicators were valid indicators/measurements of their related dimensions. A similar procedure was applied to evaluate the validity of dimensions for their related research variables. The results show that all 19 dimensions were valid measurements of their related variables.

An evaluation of the reliability of the measurement model of the dimensions (1^{st} Order CFA) and research variables (2^{nd} Order CFA) was executed by testing the variance extracted (VE) and construct reliability (CR). If a measurement model had a VE $\geq$ 0.50 and a CR $\geq$ 0.70, then the measurement model had good reliability (Wijanto, 2015; Igbaria et al., 1997). All 19 measurement models of the dimensions had a CR $\geq$ 0.70, while some of them had a VE of slightly less than 0.50. But in general, these 19 dimensions had good reliability. Meanwhile, all 5 measurement models of the research variables had a VE $\geq$ 0.50 and a CR $\geq$ 0.70. It means that all research variables had good reliability. Thus, it can be concluded that the measurement models of the research

variables have good validity and reliability.

After a valid and reliable measurement model was obtained, the next process was to calculate the latent variable score (LVS) of the 19 dimensions and 5 research variables (Jöreskog et al., 2006). This LVS calculation was needed: a) to represent the moderation of government support (GS) to the influence of CU to IC and the influence of NC to IC in SEM; and b) to perform parceling. The moderation of GS on the influence of CU to IC and on the influence of NC to IC are represented in SEM using Jöreskog's interaction model (Jöreskog, 2000; Kenny and Judd, 1984; Wijanto, 2015). The creation of new variables, namely ModGSCU and ModGSNC, is the representation of the moderation of GS to the influence of CU on IC and the moderation of GS to the influence of NC to IC respectively. The ModGSCU is measured by the single indicator GSx CU, which is derived from the multiplication of LVS of CU with LVS of GS. Similarly, the ModGSNC is measured by the single indicator GSxNC, which is derived from the multiplication of the LVS of CU with the LVS of GS.

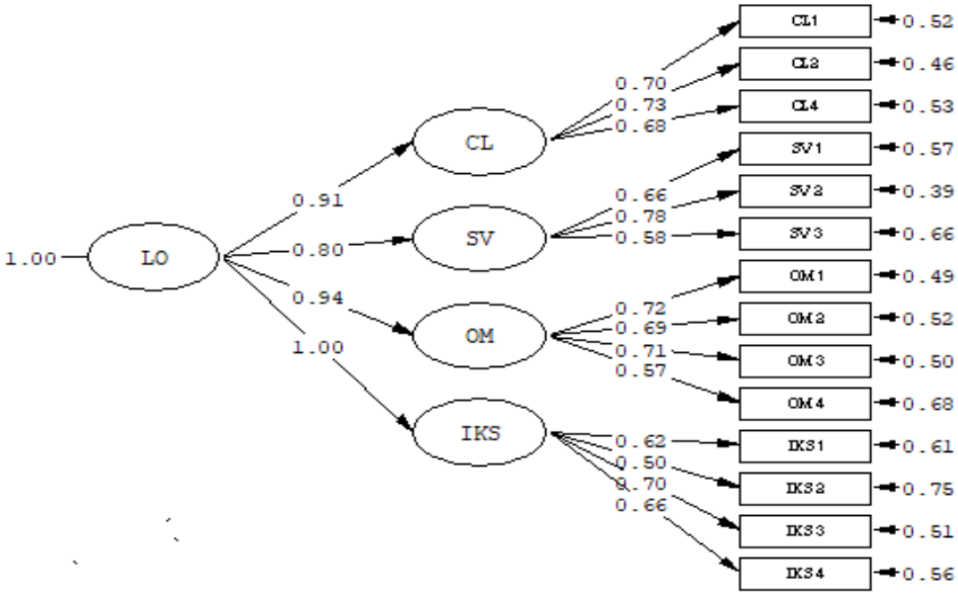
Bentler and Chou (1987) suggested a rule of thumb related to the minimum sample size required by SEM, which is 5 units of analysis for each indicator in the model. Therefore, by referring to the research model in Figure 2 (excluding GS as a moderator variable), then the minimum sample size required for this research should be 5 x 51= 255 SMEs. Since the sample size of this research was only 156, then an item parceling (Rhemtulla, 2016) using LVS was needed to be performed. With the availability of LVSs of 17 dimensions (including moderation), item parceling is implemented through the simplification or transformation of measurement models of 4 research variables from 2nd Order CFA (4 research variables, 15 dimensions, and 51 indicators) into 1st Order CFA (6 research variables - including moderation and 17 indicators). This simplification reduces the minimum sample size requirement from 255 SMEs to 5x17 = 85 SMEs. Thus, the sample size of this research (156) was sufficient. Parceling can simplify the research model. It also improves the overall fit and improves the ratio between variables and sample size to be more optimal. With parceling, the results of the parameter estimation become more stable, especially for small sample sizes (Bandalos, 2002). An example of a second-order measurement model of learning orientation is depicted in Figure 2.

The results in Figure 2 show that from all the dimensions that represent variable LO, IKS is the most dominant one in representing LO (standardized factor loading = 1).

2. Structural Model

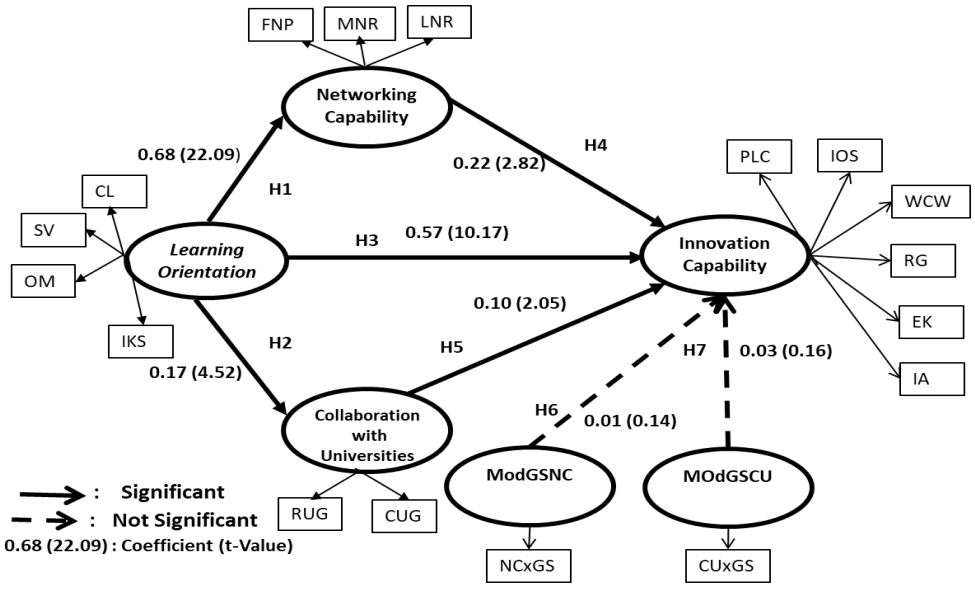
The second step of SEM is to analyze the structural model. It aims to analyze the relationship between all latent variables of the research which form the research hypotheses. This analysis consists of the overall model fit analysis and a significance test for the path coefficient. The measurement model analysis causes: a) the creation of 2 interaction variables namely ModGSCU and ModGSNC, as representations of the moderating variables in SEM, and b) the transformation of measurement models of 4 research variables from 2nd Order CFA to 1st Order CFA. The results were used to simplify the research model in Figure 1. The estimation of the simplified research model was executed, and the path diagram is shown in Figure 3.

Figure 2
Second-order measurement model of LO (standardized solution)



GOFI: RSMEA (< 0.08**) = 0.0; NNFI (> 0.90**) = 1.05; CFI (> 0.90*) = 1.00; IFI (> 0.90**) = 1.04; GFI (> 0.90**) = 0.88. ** Criteria for Good Fit; * Fixed Parameter

Figure 3
Simplified research model with a path diagram



The estimation results and overall model fit are summarized in Table 3. Table 3 also shows that all GOFIs (RMSEA, NNFI, CFI, IFI, and GFI) have a good fit. Thus, it can be concluded that the overall model fit is good. The research hypotheses can be tested and the results are shown in Table 4. It can be seen that only 5 out of 7 hypotheses are supported by the data.

Table 3
Summary of estimation results and overall model fit

Path	Coefficient	t-Value*	Conclusion
LO –> NC	0.68	22.09	Significant Positive
LO –> CU	0.17	4.52	Significant Positive
LO –> IC	0.57	10.17	Significant Positive
NC –> IC	0.22	2.82	Significant Positive
CU –> IC	0.10	2.05	Significant Positive
MODGSNC -> IC	0.01	0.14	Not Significant
MODGSCU -> IC	0.03	0.61	Not Significant
GOFI: RSMEA ($\leq 0.08^{**}$) = 0.0; (NNFI $\geq 0.90^{**}$) = 1.03; CFI ($\geq 0.90^{**}$) = 1.00; IFI ($\geq 0.90^{**}$) = 1.02; GFI ($> 0.90^{**}$) = 0.99			

* t value $\geq$ 1.96: significant **: Criteria for Goodness of Fit

Table 4
Research hypotheses' test results

Research Hypotheses	Results	Conclusion
H1: The learning orientation of SMEs has a positive influence on the networking capability.	Significant positive	H1 supported
H2: The learning orientation of SMEs has a positive influence on the collaboration with universities.	Significant positive	H2 supported
H3: The learning orientation of SMEs has a positive influence on the innovation capability.	Significant positive	H3 supported
H4: The networking capability of SMEs has a positive influence on innovation capability.	Significant positive	H4 supported
H5: Collaboration with universities and SMEs has a positive influence on the innovation capability.	Significant positive	H5 supported
H6: Government support positively moderates the influence of networking capability on innovation capability..	Not significant	H6 not supported
H7: Government support positively moderates the influence of collaboration with universities on innovation capability.	Not significant	H7 not supported

D. Discussion

In this section, a discussion is presented about the findings of the research. The results show that learning orientation is the driver of innovation capability in the innovation ecosystem of SMEs in the creative industry. Learning orientation has a significant positive effect towards networking capability (H1 is supported). This result supports a previous study by Mu (2013), which found that SMEs can obtain knowledge through their networking activities from their networking capability in creating value. Learning orientation also has a significant positive effect on collaboration with a university (H2 is supported). This result is in line with previous studies which discovered that learning orientation encourages SMEs to build collaboration with universities (Real et al., 2014; Dada and Fogg, 2016), and collaboration with universities is an effective tool to improve knowledge in an open innovation era (Chesbrough, 2003; Liao et al., 2007). Learning also has a significant and positive effect on innovation capability (H3 is supported). This finding supports a study by Jimenez et al. (Jiménez-Jiménez et al., 2014), which revealed that learning orientation has a direct effect on innovation capability.

The networking capability of SMEs has a significant and positive effect on innovation capability (H4 is supported). This result is in line with some previous studies which claim that being open in a network is useful for building innovativeness (Laursen and Salter, 2006), and companies which are weak in networking capability have difficulties to grow (Ritter and Gemunden, 2003). Collaboration between a university and SME also has a significant and positive effect on innovation capability (H5 is supported). This result supports past studies which found that an organization relies on learning and knowledge, and it needs to develop collaboration with universities to build innovation capability (Kirkman and Phillips, 2011; Perkmann et al., 2011).

Hence, the above results provide insights into the role of learning orientation of SMEs in the creative industry. Learning orientation is fundamental for SMEs in the creative industry in Bandung to build innovation capability through collaboration with business community networks and universities. The results are in line with those of previous studies (Calantone et al., 2002; Jiménez-Jiménez and Sanz-Valle, 2011; Kotabe et al., 2011).

However, it is found that the moderating effect of government support towards the influence of networking capability on innovation capability is not significant (H6 is not supported). This finding does not support a previous study which discovered that the government supports SMEs in developing a network to build their innovation capability (Nguyen and Nguyen, 2013). The moderating effect of government support on the influence of collaboration with universities on innovation capability is not significant either (H7 is not supported). This result is not in line with previous studies that state the government policy supports universities to develop the business incubation (Etzkowitz, 2002), and strengthen the collaboration between industry and university research (Simard and West, 2006). Thus, surprisingly, it can be seen that SMEs in the creative industry in Bandung do not perceive government support as a significant factor in the development of their innovation capabilities.

Learning orientation is represented by its dimensions (see Figure 2), and the dimension which predominantly represents LO is intra-organizational knowledge sharing (IKS; SFL=1.00). It means that if SMEs continuously increase the activities of intra-organizational knowledge sharing, it will have the greatest impact on the

innovativeness of the SMEs. IKS includes the willingness to learn from history and past experiences, to learn from the successes or failures of other organizations, and to share knowledge within the company.

Government support (GS) is represented by its dimensions. Also, it can be seen that in Figure 4, investment in scientific research (ISR) is the most dominant one (SFL= 1.00). In fact, the municipality of Bandung has implemented an innovation program to support SMEs in the creative industry, which includes providing a favorable business environment by supporting the creative industry community, and by building an innovation platform like Bandung Creative Hub. Investments in scientific research have been done by building a business incubator for innovation, developing innovation policies, and being a member of ICCN and UCCN. The municipality of Bandung already has innovation policies and regulations (Pratiwi and Riyadi, 2015). Previous studies found that government regulations and policies can support innovation (Ashford et al., 1985). However, if the implementation is not well-managed, it will not be effective and even inhibit the innovation process.

The findings provide insights into the collaborative innovation process involving SMEs in the creative industry, universities, business communities, and the government. The results indicate that SMEs, business communities, and universities work together pretty well in the innovation ecosystem platform, while the government still needs to evaluate and refine its innovation support program, so that it can benefit SMEs significantly. Referring to the demography, the majority of the respondents were in the culinary and fashion subsectors (65%) with an annual revenue of IDR 300 million or less. Hence, it can also be inferred that small businesses in the creative industry in Bandung have a strong learning orientation, even though they are without significant support from the government.

V. CONCLUSION AND RECOMMENDATIONS

A. Conclusion

This research proposed an innovation ecosystem model with an open innovation concept that can be used to analyze the development of SMEs' innovation capabilities in the creative industry. The results indicate that the development of innovation capability mostly relies on the learning orientation of SMEs as the internal resources.

The findings show that in general, learning orientation is the driver behind the innovativeness of SMEs, directly or indirectly, mainly through their networking capabilities with business community networks as the external resources. SMEs' collaborations with universities also contribute in developing innovation capabilities. Surprisingly, the findings indicate that government support does not show a significant moderating effect on the development of SMEs' innovation capabilities. This implies that although Bandung municipality has implemented an innovation program to support SMEs, the program still needs to be refined, especially at the execution level so that its benefits can be felt by SMEs.

B. Theoretical Implications

This study synthesizes the triple helix concept, which focuses on the relations between an industry, a university, and the government as the actors in developing innovation capability, as well as the quadruple helix concept, which adds a community network as the fourth actor in the innovation ecosystem. However, both the triple helix and quadruple helix concepts cannot explain the framework of the innovation development process and the role of each actor in developing innovation capability. They have not elaborated either the fundamental role of the learning orientation or the industry as the driver of innovation.

This study has three theoretical contributions. First, this study explains the innovation framework among four innovation actors (industry, university, government, and business community) in the innovation ecosystem. Second, it clarifies the important role of SMEs in building their innovation capabilities through their learning orientation from a human perspective. Third, it contributes to the enrichment of an open innovation concept in the context of an innovation ecosystem in the creative industry.

C. Managerial Implications

The results of this study also have some managerial implications. The results show that learning orientation has a positive influence on networking capabilities, collaborations with universities, and innovation capabilities. Therefore, SMEs in the creative industry should focus on learning, especially the intra-organizational knowledge sharing activity. The SMEs must also update their customers' information, evaluate decision making about trends, and conduct market analyses. This also means that they must collaborate with other firms and universities to develop innovation capabilities. Meanwhile, university research must be relevant with the needs of SMEs in the creative industry, and universities must be able to produce creative and innovative human resources.

This study has also demonstrated that networking capabilities are very important for SMEs to increase their innovativeness. The results imply that business community networks must be developed and supported by the government. Hence, the SMEs must participate in government programs, such as seminars and innovation training, and actively utilize the facilities provided by the government (e.g. access to the market and financial institutions). Furthermore, the government should improve the relationships between universities and SMEs by providing research funding for the faculty members to conduct research about SMEs and their innovations and ensure that the implementations of the programs match with what the SMEs need in a more creative way.

D. Limitations and Suggestions for Future Research

This research has some limitations. First, this study is cross-sectional research. Thus, it is suggested to do future research on a longitudinal basis to get deeper insights on the dynamics of the SMEs in the creative industry in Bandung. Second, the respondents of this research are only in the subsectors of culinary, fashion, and crafts, as these industries contribute more than 75% of the GDP of the Indonesian creative economy, plus the design subsector (because Bandung is a UNESCO World Creative City of Design). It is

suggested to do future research that includes other subsectors of the creative industry. Third, this study does not include the variable of innovation performance as the outcome of innovation capability. Thus, in future research, it is suggested to include innovation performance as an outcome of an innovation ecosystem. Fourth, the context of this empirical study is limited to the creative industry in Bandung. Accordingly, it is suggested to do future research with more samples from other creative cities in Indonesia.

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