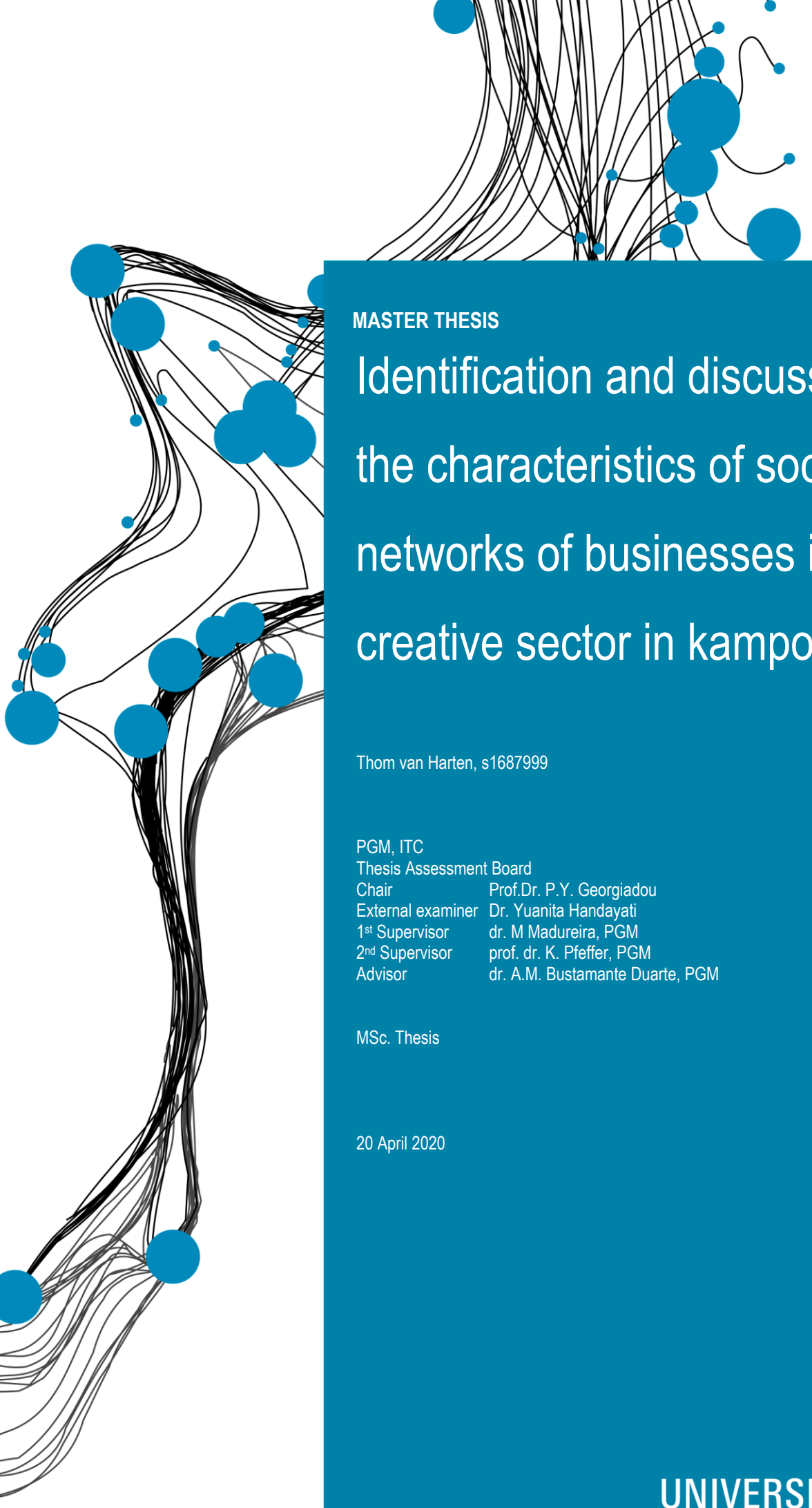

MASTER THESIS

Identification and discussion of the characteristics of social networks of businesses in the creative sector in kampongs.

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MSc. Thesis

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Abstract

Social networks play a crucial role for businesses in the creative sector. They provide access to resources, help with daily activities, development, and help businesses keep up to date on new developments. So far, social aspects of business networks have not been majorly studied in the Global South, especially Indonesia, therefore this study attempts to analyze the characteristics of social networks and their significance in creative businesses of Bandung, Indonesia. This can be useful for policymaking and further academic studies. The characteristics of these social networks are studied concerning three aspects, *ties* which will involve the type of network partners and the functions of ties within the organizations*, exchange of resources* with the network partners including knowledge and capital*, and location* of the business and their relations inside as well as outside of the neighborhood. Moreover, the research also explores the characteristics of businesses and their owners.

The study uses a methodology similar to Social Network Analysis (SNA), with the aim to construct one social network per surveyed business in three neighborhoods of Bandung, namely, Binong Jati, Cigadung, and Dago Pojok as they are common residential areas in Indonesia. The secondary data used for this study is collected via surveys for the INECIS project conducted by ITC, INISIATIF, and ITB. The data is further analyzed and visualized; unexpected results and gaps of the data are clarified in the interviews with experts. Moreover, the similarities and differences between the three neighborhoods of Bandung will be visualized.

The results show that small businesses rely on family as employees. Furthermore, employees are sourced locally, are often friends and neighbors, and are mostly employed on a project base. The government is involved with the creative sector and supplies workspaces, equipment, and training. Collaborations between businesses that were registered tend to be focused on fulfilling orders while sharing phases of production, as well as on sharing information and developing products. There are also collaborations with NGOs for support, and universities to gain access to knowledge. The community is essential for the success of projects and is involved via the community leader. The effect of the (personal) characteristics of the business (owners or managers) is unknown due to the restrictions of the data collected and the time allocated for the current research.

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Additionally, I want to thank my interviewees for their valuable input for my thesis. For hosting me while being in Indonesia and sharing insights, and ideas for my work. Also, thank you to Jati for conducting interviews on my behalf, transcribing them, and finally translating them. I couldn't have done this without you.

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Enschede, April 2020

Thom van Harten

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Chapter 1 Introduction

The present thesis explores the role of social networks of the creative sector businesses in Indonesia, specifically in Bandung. These social networks in the creative sector are the relations between individuals, businesses, and their network partners, for instance, the people, organizations, and businesses who are part of the social network (Clare, 2013; Hoang & Antoncic, 2003; Witt, 2004). In this thesis, the creative sector is defined for this work, as the production of services and products based on creativity, (new) ideas, the commodification of traditions, intellectual property, and knowledge (Gregory, 2016; Scott, 2010). The social networks in the creative sector support the economic development of businesses in this area (Eijdenberg, Thompson, Verduijn, & Essers, 2019). Also, they support the development of the sector by facilitating the exchange of resources between businesses and their network partners (NWPs) (Asheim & Coenen, 2005; Clare, 2013). The exchanged resources are, for example, knowledge, labor, capital, social security, and ideas (Bakas, Duxbury, & Vinagre De Castro, 2018; Bathelt, Malmberg, & Maskell, 2004; Eijdenberg et al., 2019; Lau & Lo, 2015). Additionally, social networks are often supported by government organizations, NGOs, and community organizations (Kustiwan, Ukrin, & Aulia, 2015; McPherson, Smith-Lovin, & Cook, 2001). The aforementioned social networks and supporting organizations are unique for the geographic location they are found in (Clare, 2013).

1.1 Background and justification

The creative sector has been extensively studied by various researchers and practitioners such as Florida (2004), Bathelt et al. (2004), Gregory (2016), and Scott (2010) and as part of the modern city by LeGates & Stout (2015) and Scott (2010). This sector has had focalized attention, at various levels, especially in the Global North (Gregory, 2016). Social networks are important for businesses in the creative sector because they provide access to various resources (Bathelt et al., 2004; Clare, 2013; Eijdenberg et al., 2019). In the creative sector in the Global North, social networks provide opportunities to collaborate and get inspiration for new products and services (Clare, 2013). In studies in the Global North, businesses in the creative sector have been found to benefit from having social networks (Clare, 2013). The creative sector is a recent but important part of the economy and is important for society in Indonesia (Fahmi, McCann, & Koster, 2017; Gregory, 2016; Kustiwan et al., 2015; Maryunani & Mirzanti, 2015). Therefore, the main hypothesis of this work is that: social networks are important for businesses in the creative sector in the Global South and, more specifically, in Indonesia as well (Clare, 2013; Eijdenberg et al., 2019; Meutia, 2015).

1.2 Research gap and problem statement

The relation between social networks and creative business development has been an object of research before, but mainly in the Global North. In the Global South social networks are important in the creative sector as well (Fahmi, 2019). The importance of social networks for the creative sector in Indonesia is underlined by Cole (2007), in research on tourism enterprises in Ngadha, East-Nusa Tenggara, Indonesia. Additionally, Meutia (2015) researched social competence and business performance in the creative sector in Indonesia, and also highlighted the importance of social networks for the creative sector.

Knowledge of the functioning of the creative sector could lead to adjusted creative city policies, and adjusting these is relevant to retain creativity in the city (Bakas et al., 2018; Fahmi et al., 2017). Furthermore, Kustiwan et al. (2015) argue that 'Creativity needs to be encouraged, and imagination needs to be enhanced so that public, private sectors, and community can work together to solve problems for the urban living.' However, for inclusive (creative city) policies, knowledge is needed about the local situation (Ahmad & Hoffmann, 2011). According to Fahmi et al. (2017), the role of the

creative sector in Indonesian cities and the country's economy is unclear. Henceforth, more knowledge about the functioning of the creative sector in Indonesia is needed to form inclusive and adapted creative city policies adapted to the local situation; which can help to alleviate problems for the urban living for example by providing 'creative spaces in its neighborhoods' in which creative people come together, get to know each other, and exchange ideas (Fahmi et al., 2017; Gregory, 2016; Kustiwan et al., 2015). Social networks are an entry to local knowledge as the former is part of the latter, and local knowledge is needed to form an adjusted policy in the case of creative industries in Indonesia (Fahmi et al., 2017).

Additionally, there is limited detailed knowledge available on the characteristics of social networks in Indonesia, particularly on the *ties,* what is *exchanged,* and the *location* of the network partners (Clare, 2013). *Ties* are the objects of study in social networks since resources are exchanged, and such ties have location-specific characteristics (Eijdenberg et al., 2019; Firestone, Ward, Christley, & Dhand, 2011; Granovetter, 1973). Another important aspect of social networks is the characteristics of the actors in social networks, but there is limited information available on these actors in the context of Indonesian creative sector businesses (Kustiwan et al., 2015; McPherson et al., 2001).

Given the gaps identified above, detailed knowledge about social network characteristics in Indonesia, and specifically with regard to those in the Indonesian creative sector, is needed. There is a need to gain knowledge about these aspects of academic and policymaking purposes. Therefore, this study aims to characterize and analyze social networks in the creative sector in Indonesia and to understand the following aspects linked with social networks in creative industries: *ties, exchanges of resources,* and *location*. Additionally, data on the characteristics of the businesses and their owners/managers will be collected as they can be used for explaining patterns in the characteristics.

1.3 Research aim and questions

The main objective of this work is to characterize social networks of businesses in the creative sector, based on their *ties* (i.e., family, neighbors, associations, business networks, friendships, other), *exchange of resources* (i.e., knowledge, labor, institutional support, capital, goods, other), and l*ocation* (i.e., within kampong, elsewhere in the city, outside city) in creative sector businesses in Bandung, Indonesia.

The main objective is operationalized with the sub-objectives and related operationalization through research questions:

1. To discuss and define characteristics of social networks which are important for Bandung's creative sector, such as *ties*, *location*, and *exchange of resources*.
    1. How do, according to literature, *ties, exchange of resources,* and *location* influence the development of creative industries?

2. To identify and visualize the social networks of businesses in the creative sector in Bandung and their characteristics, such as *ties*, *location*, and *resources exchanged*.
    2. What are the meaningful social network characteristics found in the collected, primary and secondary, data on the creative sector in urban kampungs of Bandung?
    3. How can the characteristics of social networks be visualized?

3. To analyze and discuss patterns in the characteristics of social networks of businesses in the creative sector in Bandung.

4. Which patterns can be derived from the social networks of businesses in the creative sector in urban kampungs of Bandung?
5. How can these patterns be explained?

1.4 Contributions to science and society

This thesis aims to contribute to the following areas:

- Scientific knowledge on social networks in the creative sector on a local scale.
- Input for creative city policy debate (scholarly and government level debate).

1.5 Conceptual framework

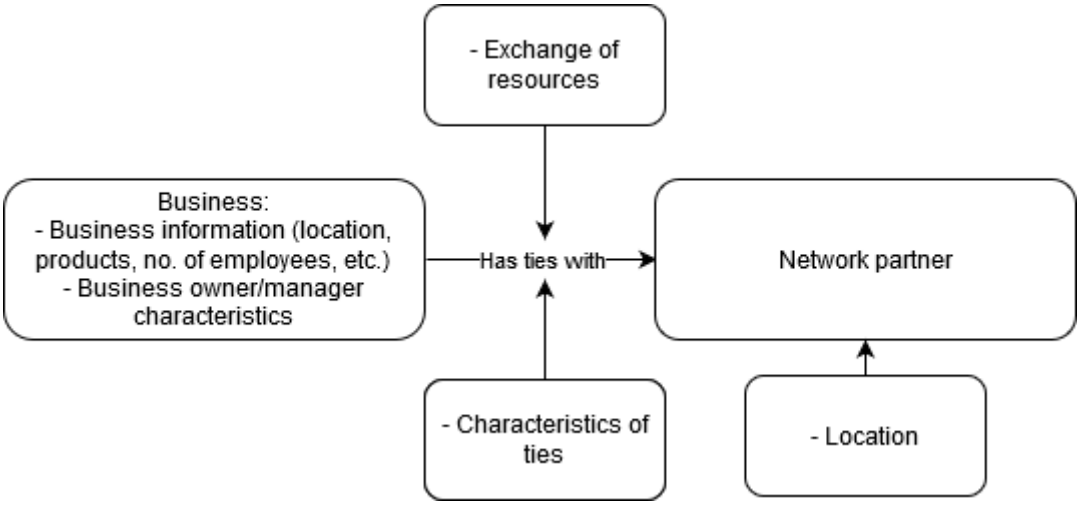


Figure 1 Conceptual framework of the conducted study (own work)

The business owner has a certain relationship with network partners. The ties the business owner or manager engage in are influenced by the characteristics of the business, such as product, number of employees, and location of the business. The ties are also influenced by the business owner or managers, such as gender, age, and migration background. The relationships have certain traits: the ties exchanged resources within the relationship. The location of the network partner is an important characteristic of the network partner.

Chapter 2 Literature review

The literature review focusses on the characteristics of social networks. In the context of this research, social networks are split up in three different dimensions, *ties* such as family, friends and institutions, *exchanges of resources*, such as knowledge and capital, and *location* (as in Poland & Maré (2005) notion of the geographic community). The choice of these three dimensions will be explained below. Additionally, data on the characteristics of businesses and their owners/managers are looked at, as the literature indicates these factors can explain patterns in social networks (Freeman, 2005; McPherson et al., 2001).

2.1 Characteristics of businesses and their manager/owner

According to McPherson et al. (2001), an important influence on social networks formations are the characteristics of individuals in social networks, the individuals in the social networks studied are the businesses owner or managers. This influence is called homophily and is an important explanatory factor for patterns that have formed in social networks (Clare, 2013; Delgado, Porter, & Stern, 2014; Freeman, 2005; McPherson et al., 2001). It means that people tend to interact more with those that are similar; it eases communication and enforces trust (Brass, Galaskiewicz, Greve, & Tsai, 2004). This similarity applies to social network relations and is called homophily. It is most dominant in the factors of ethnicity and race and less dominant in descending order for age, religion, education, occupation, and gender (McPherson et al., 2001; Wasserman, Scott, & Carrington, 2005). Other factors, when considering homophily, are prestige, location, and tenure (Brass et al., 2004; McPherson et al., 2001). Apart from explaining the existence of clusters, and a factor in the success of businesses, homophily also affects the social networks formed within the cluster (Freeman, 2005; McPherson et al., 2001).

2.2 Ties

Ties are the relationships between individuals. Social networks are constructed of ties between actors and network partners (NWPs), which can be various parties such as family and friends, neighbors, institutions, and other businesses (Granovetter, 1973; Hoang & Antoncic, 2003; Witt, 2004). *Ties* have a strength depending on various characteristics such as type of tie, resources exchanged, and personal preferences. Amongst others, the type of tie is an important influence, for example, a family tie is considered a relatively strong tie, but a tie with a colleague who is in a different department with whom you interact in the Christmas party can be seen as a weaker tie. Granovetter (1973) argues for the existence of a relation between the strength of a tie and the diffusion of information in social networks. *Weak ties* in such context are ties such as business partners known via a business organization which has lower frequencies of meeting and *strong ties* are those such as family or friends who meet more often (Granovetter, 1973). *Ties* are important for starting a business, and for its success, ties with other businesses are an important example of this (Eijdenberg et al., 2019; Granovetter, 1973). Cole (2007) notes that in Indonesia, business success is related to the approval of the community, as Indonesian culture is collective, and enterprising needs to be community supported. Personal relations such as friends and family are important types of ties for businesses considered mostly close ties with distinctive characteristics such as (non-existing) diversity in age groups and homogeneity in the race (Eijdenberg et al., 2019; Granovetter, 1973). Family and friends are an important part of a social network; these relationships are strong and long-lasting relationships (Eijdenberg et al., 2019; Gregory, 2016; McPherson et al., 2001). In Tanzania, Ubuntu is a concept of relying on family and friends for support in starting your business (Eijdenberg

et al., 2019). According to McPherson et al. (2001), family form close strong ties which are heterogeneous and homogeneous at the same time, homophily in race, ethnicity, and religion but more heterogeneity in age and gender. McPherson et al. (2001) also mention that friends have more homophily in age and gender and educational background. This is important as family and friends are important for starting and maintaining a business (Eijdenberg et al., 2019).

Additional groups of NWPs are businesses in the same sector, which can provide expertise, capital, and information helpful for businesses (Alam, Ibn-Boamah, & Johnson, 2019; Delgado et al., 2014). Other businesses provide access to resources such as knowledge and capital (Alam et al., 2019; Asheim & Coenen, 2005; Witt, 2004). Witt (2004) mentions businesses as potential NWPs, for instance, as suppliers and customers. In addition, businesses can be sources of ideas and tools (Alam et al., 2019; Hoang & Antoncic, 2003). Other businesses within the same sector can be an advantage because of sharing common resources but also a disadvantage for businesses in a cluster due to input congestion, for example, competition for available land in a cluster (Delgado et al., 2014; Rødseth, 2013).

Another important type of NWP is support organizations, such as community organizations, professional associations, and the government (Alam et al., 2019; Delgado et al., 2014). These support organizations can provide expertise, capital, and information helpful for businesses (Alam et al., 2019). Organizations can also step in if certain groups are excluded from government support. For example, in the case of kampongs in Bandung, the organization 'Komunitas Taboo' set-up the 'Kampong Kreatif' project to 'adapt the 'creative city' to local conditions and social organization' (Prasetyo & Martin-Iverson, 2013). The project 'Kampong Kreatif' aimed to achieve this goal by developing 'critical awareness, build social solidarity, and energize local organizations so that the kampong residents can claim their place within the wider creative city of Bandung' (Prasetyo & Martin-Iverson, 2013). Organizations can also be set-up to provide network opportunities, to stimulate the scene for local businesses (Delgado et al., 2014), or as an incubator for small businesses as advised by Kustiwan et al. (2015) for Pasundan and Cicadas (Bandung, Indonesia).

2.2.1 Functions of ties

Ties in social networks are important as they can make up for institutional voids and can provide support to business activities (Bakas et al., 2018; Eijdenberg et al., 2019; Kustiwan et al., 2015; Maryunani & Mirzanti, 2015). The lack of a certain type of institution is called an *institutional void.* Institutions are, for instance, policies and organizations, rules and regulations, and are often designed to bring together, for example, businesses and knowledge organizations (Bakas et al., 2018). Organizations or collaboration institutions for sharing knowledge are often government initiated, to boost the innovation and the regional economy (Bakas et al., 2018). These voids are insufficient institutional factors, and can also have to do with family structures, lack of access to capital, and the absence of formal government policy (Eijdenberg et al., 2019). Organizations also support businesses by organizing activities and facilitating collaboration (Kustiwan et al., 2015). They can help to grow the businesses (Kustiwan et al., 2015).

Indonesia, including Bandung, is a challenging institutional environment because of institutional factors such as inefficient bureaucracy, corruption, limited access to financing, inadequate supply of infrastructure, and some parts of the population have low levels of literacy (Maryunani & Mirzanti, 2015). An example of a solution for inadequate government policy is that social networks can be used to build a business on social networks, instead of building a business on official registrations (Eijdenberg et al., 2019). A more concrete example situated in Bandung, to solve for policy inadequacies, is the 'Kampong Kreatif' initiative which addresses the exclusion of the concept

kampongs, an informal designation for urban neighborhoods, of existing creative city policies in the creative city policies (Kustiwan et al., 2015).

2.2.2 Enablers of tie formation

Organizations can be an important source of ties; these can be business associations, schools, or other facilities (McPherson et al., 2001). Research shows that various ties are formed within organizations the business actors are part of (McPherson et al., 2001). These organizations can be a class in school for pupils, or a collaboration initiative for businesses such as an incubator or network platform ("CEN," n.d.; Delgado et al., 2014; Kustiwan et al., 2015; McPherson et al., 2001). In Bandung, examples of such organizations are the Bandung Creative City Forum and its 'Simpul Space' which provides a platform to organize community activities free of charge ("CEN," n.d.; "SIMPUL SPACE / Simpul.BDG – Ruang Kreatif Publik Komunitas Bandung," 2012). Other sources of ties can be activities organized such as the annual DesignAction.bdg workshop, and the City of Design Biennale ("Bandung Design Biennale | About," 2019; "CEN," n.d.; "designaction.bdg," 2019).

2.3 Exchange of resources

With regard to business, the *exchange of resources* is an important reason to maintain social networks since they help to establish and maintain a business (Delgado et al., 2014; Eijdenberg et al., 2019; Hoang & Antoncic, 2003). Hoang & Antoncic (2003) mention the benefits of access to resources such as information and capital as a benefit of social networks. Social networks are also important to stay competitive and share information and knowledge (Asheim & Coenen, 2005). In developing countries, such as Tanzania, these networks are used to overcome institutional constraints (e.g., bureaucracy with bribes to government officials) (Eijdenberg et al. 2019). Social networks also provide access to capital and customers (Eijdenberg et al., 2019).

Furthermore, they facilitate the exchange of resources, such as goods, capital, knowledge, and labor. This is an important function of social networks (Bathelt et al., 2004; Brass et al., 2004; Haythornthwaite, 1996; Tsai & Ghoshal, 1998). Tsai & Ghoshal (1998) studied intra-firm resource exchanges in a multinational electronics company and a significant relation between social interaction and resource exchange. Haythornthwaite (1996) mentions various resources are exchanged via ties in social networks. Some of the resources exchanged are ''tangibles such as goods, services, or money, or intangibles such as information, social support, or influence''.

Resources can be exchanged between individuals, institutions, and organizations (Haythornthwaite, 1996), this is underlined by Eijdenberg et al. (2019) from research in social networks in a developing country, Tanzania. In Indonesia, a large portion of the economy is informal, and from studies on the informal economy, we can learn that the exchange of capital is important, as access to capital is a constraint for informal companies (Rothenberg et al., 2016). Also, knowledge exchange is very important for innovation and business performance (Bathelt et al., 2004). Facilitating these exchanges are organizations such as knowledge and collaboration institutes (Delgado et al., 2014). Another institution facilitating the exchange of resources are incubators since they supply seed money to start and expand businesses (Alam et al., 2019).

2.4 Location

The *location* element in social networks in the creative sector is important because the creative sector tends to be geographically clustered, and social networks are often embedded in the geographic community and have geographic elements (Bathelt et al., 2004; Clare, 2013). First of all, the creative sector with certain characteristics cluster in places (Gregory, 2016; Scott, 2010); these clusters make it possible for businesses to work together and easily exchange resources and employees (Asheim & Coenen, 2005; Clare, 2013). Social networks are part of the geographic

community where they formed; geographic communities are formed within a certain geographic area and share access to a common set of organizations, and resources; therefore, they are uniquely bound to the place they form (Clare, 2013; McPherson et al., 2001; Poland & Maré, 2005; Witt, 2004). Social network relations form within the spatial cluster (internal) and outside the spatial cluster (external) (Bathelt et al., 2004; Delgado et al., 2014). These internal and external networks are important to gain access to the resources defined prior and to remain innovative (Asheim & Coenen, 2005). Also, these internal and external networks are important to sustain 'buzz' which, is '[the] information and communication ecology created by face-to-face contacts, co-presence and co-location of people and firms within the same industry and place or region' (Bathelt et al., 2004). Additionally, the external networks help to overcome lock-in effects, which are defined as '[the] inability of deviating from an established but outdated technological trajectory' (Asheim & Coenen, 2005).

Communication is an important reason for clustering. Employees meet each other during social events or outside work for a drink (Clare, 2013). Those moments are essential to exchange ideas and keep up to date on the latest developments in the sector (Clare, 2013). It is also a way for employees to create job security in an insecure employment situation in which employees are not sure if there is work the next day (Clare, 2013). Employees can continuously keep up to date on the latest job openings and projects (Clare, 2013; Scott, 2010). Companies can also work on projects together as face to face meetings are important for this. The research found that communication via the internet is not necessarily a suitable replacement for face to face interactions(Clare, 2013).

Analytical knowledge bases are referred to as 'industrial settings, where scientific knowledge is highly important, and where knowledge creation is often based on cognitive and rational processes, or on formal models.' Synthetic knowledge bases are referred to as 'industrial settings, where innovation takes place mainly through the application of existing knowledge or through new combinations of knowledge' (Asheim & Coenen, 2005).

With external networks, clusters keep the connection to the outside world and sustain innovation (Asheim & Coenen, 2005; Bathelt et al., 2004; Parida, Pesämaa, Wincent, & Westerberg, 2017). External network connections can be seen as 'channels used in distant interactions' are called 'pipelines' (Bathelt et al., 2004). These pipelines are extremely important to keep up with the competition and avoid lock-in (Bathelt, 2004). Internal networks are important to sustain 'buzz' in a cluster (Bathelt et al., 2004). 'Global 'pipelines' support the internal cohesion of clusters and can be beneficial for the local 'buzz' (Bathelt et al., 2004).

2.5 Summary literature review

Overall, from the literature review, the following insights and hypotheses related to the data on social networks for creative sector businesses are extracted, and will be further carried to the remaining chapters of the thesis:

1) Three different characteristics of social networks are important for (creative) business development: ties, location, and exchanges of resources.

2) It is expected that (creative) businesses participate in internal and external networks, and a lack of internal and external ties can deter the growth of businesses in the cluster by means of lock-in and limiting access to new knowledge and technologies.

3) It is also expected that businesses exchange resources amongst each other, especially knowledge, which is an important aspect of social networks, and that there are relations with different knowledge bases.

4) Institutions are expected to be central in social networks and to exchange resources with businesses such as capital and knowledge.

5) Institutions are helping businesses with network formation and can help start and maintain businesses.

6) There are expected to be institutional voids, and social networks and organizations are expected to fill in institutional voids.

7) Differences in the characteristics of the geographic community cause different social networks to be formed, and so are the reasons for having ties and exchanging resources.

8) Community involvement is expected to be important (especially in the context of Indonesia).

9) Small and starting businesses often rely on family as employees.

10) (personal) characteristics of businesses and their owners and managers are expected to influence the networks formed.

11) We expect to find differences in tie strength, depending on factors such as race, age group, and educational background.

Chapter 3 Research design

The research design is an adaptation from Social Network Analysis (SNA). The study uses a case study approach with areas selected in Bandung (more on the case study approach in Section 3.1). SNA is used for collecting and analyzing data on social networks (see more on this in Section 3.2). The used data is derived from data from the INECIS project, which collected them via a structured survey (further details on the data collection method in Section 3.3). A number of variables are selected based on the literature review and processed into a database (more information on the constructed database can be found in Section 3.4). Thereafter, the data analysis is performed on the database using assumptions extracted from the studied literature (see Section 3.5). Finally, the results of the data analysis are used to conduct semi-structured interviews to collect information on data gaps and triangulate findings (see Section 3.6).

3.1 Case study approach

This research uses a case-study approach. The case study is set in Bandung, Indonesia. A case-study approach is a common method in social network studies as well as on research explorations on the creative sector (Adiati, 2016; Brandellero & Pfeffer, 2015; Firestone et al., 2011). By choosing a case-study approach, the results can be interpreted in the local context, and this facilitates understanding and interpretation (Freeman, 2005; Wasserman et al., 2005). Bandung, Indonesia is an interesting case-study area for the creative industries in the Global South, more on the case study area and the selection, see Chapter 4.

3.2 Social Network Analysis

The methodology employed in this thesis is based on Social Network Analysis (SNA). SNA is a commonly used method to study patterns of relationships in social networks and what is exchanged in those social networks (Haythornthwaite, 1996; Wasserman et al., 2005). Therefore, SNA is considered a well-suited approach to address the main research aim: Analyze the characteristics of social networks, namely ties, exchange of resources, and location in creative sector businesses in Bandung, Indonesia.

In SNA, data is collected via surveys and questionnaires on a subject of interest, which in this case is social networks in creative businesses. This data is further studied for patterns in relationships between actors in the network (Haythornthwaite, 1996). The summary of the different research questions and their expected outcomes can be found in Figure 2.

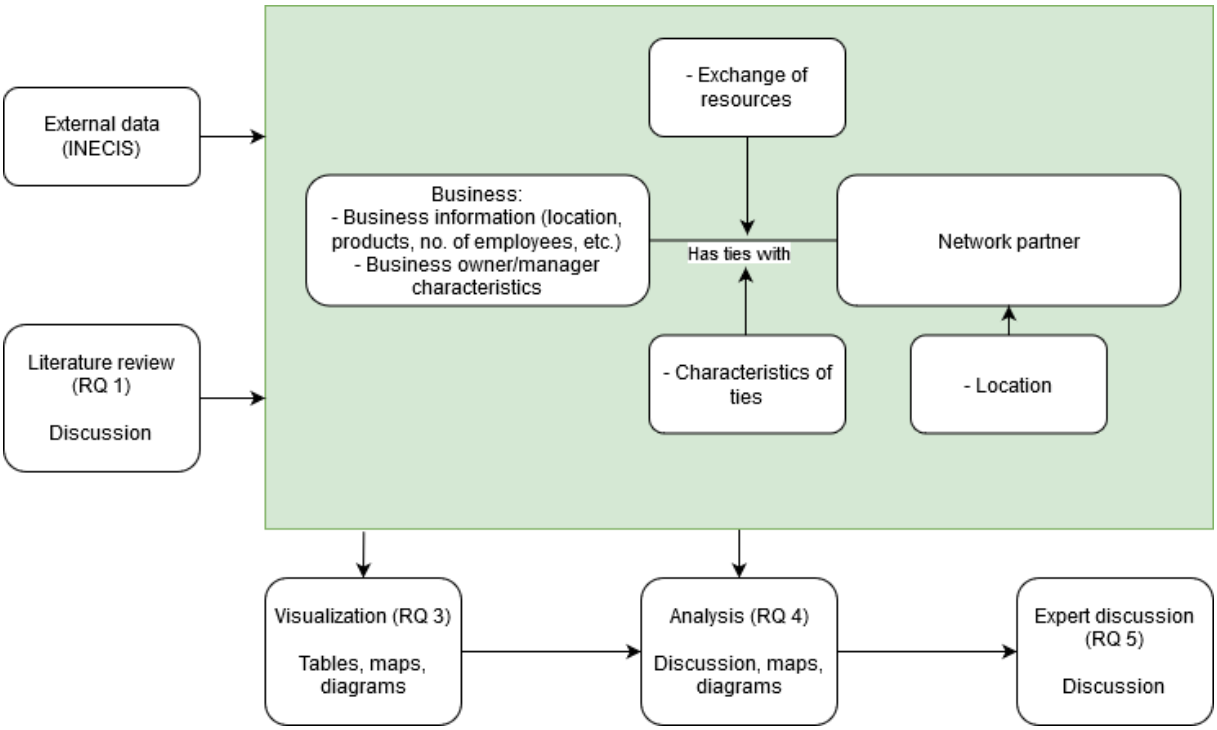


Figure 2 Research design and research outcomes

Data on the actors and their relationships with network partners in the study area needs to be collected and processed to construct egocentric social networks (Haythornthwaite, 1996; Marsden, 2005). This method focusses on individual actors and their networks (Marsden, 2005). In this study, actors are defined as business owners and managers of businesses within the creative sector. Network partners of actors are defined as family members, friends, business partners, other founders, and also contact persons at institutions such as universities, large companies, and authorities (Witt, 2004). The actors, in the case study areas, are located in Bandung, Indonesia, which has been studied for the INECIS project ("INECIS," n.d.). An ego-centric network with network partners is obtained per actor (Marsden, 2005), based on the data collected for INECIS in the areas.

The data collected used to visualize and analyze the social networks of the actors and the network partners. Data needed for the SNA is (Marsden, 2005):

- Actors
- Network partners
- Type of relationships and the exchange of resources within ties between actors and network partners
- Characteristics of actors and network partners (e.g., subsector, age, origin, product, age of business, location.) (McPherson et al., 2001)

The data used in the research is collected for the INECIS project in 2019. The data are the results of a structured survey, more on the data see Section 3.3, the survey questions and the identified attributes can be found in Appendix A. In order to analyze the data, this is processed into a matrix consisting of actors and network partners. This matrix is constructed from the survey collected data, and it is called a sociomatrix. A sociomatrix is a type of origin-destination matrix. Instead of a sociomatrix with only the relations between the actors and network partners, the relations will be collected in a database alongside data on the actors and network partners (Koehly & Pattison, 2005; Marsden, 2005). More on the database construction, see Section 3.4.

In order to visualize the data for the case study descriptions, this is processed into matrices for analysis (Brandellero & Pfeffer, 2015; Firestone et al., 2011; Freeman, 2005). From these matrices, several characteristics are visualized in tables, infographics, and maps. Visualizing social networks makes them visually attractive and easier to interpret than a database (Freeman, 2005; Haythornthwaite, 1996). The visualizations can subsequently be used for identifying patterns in the data with various statistical and visual methods (Freeman, 2005). The various identified qualitative and quantitative characteristics of social networks can be used to identify and explain patterns in the data. The results of this visualization are found in Section 4.3.

The data is analyzed with results from the literature review and with observations from the case studies, to find patterns in the data. This analysis is performed in SPSS, a tool frequently used for analyzing datasets in the social sciences (Conry et al., 2011). From this data analysis, gaps of knowledge are distilled, which are the base for the construction of interview questions. Also, triangulation is used to check the results of the data; the method of triangulation are interviews (see Chapter 3.6). The resulting findings are discussed in light of the hypothesis raised in the literature review. More about the data analysis can be found in Section 3.5.

3.3 Data collection method

The majority of the data used in this thesis is secondary data coming from the INECIS project. Other data used is primary data from interviews and data from scientific literature, along with geographical data from Open Street Map. This data comes with .pdf, .docx and .osm extensions.

The data set is part of the INECIS project conducted by ITC, INISIATIF, and ITB in the kampongs Dago Pojok, Binong Jati, and Cigadung. The INECIS project is aimed at improving understanding of the (informal) creative sector in kampongs in Bandung, Indonesia. This data is collected via surveys in October/November 2019 for the INECIS project. The survey questions are tailored to get a broad overview of the creative sector in Bandung, Indonesia. The initial survey questions are made in English and have been translated to Bahasa by research assistants at ITB. The survey is conducted by students from ITB who were recruited and trained as surveyors. 166 business owners and managers were asked to participate in the survey; the surveyees are located in the three kampongs selected and part of Bandung's creative sector. Collected are 133 in Binong Jati, 13 in Dago, and 20 in Cigadung. More about these kampongs in Chapter 4. Surveying is a method which often used in social network research (Haythornthwaite, 1996; Marsden, 2005). Questions are tailored to grasp aspects of social networks (Marsden, 2005). In the case of the INECIS survey, this is tailored to get an overview of the creative sector in the study areas ("INECIS," n.d.).

The survey is constructed in an XLSForm, which is uploaded to the KoBo Toolbox platform and converted into an ODK Xform. The survey is deployed with KoBo Collect, an Android app to collect surveys made in KoBo Toolbox. The survey is deployed on a phone or tablet with the app and the survey loaded into it. The collected surveys are temporarily stored on the KoBo Toolbox cloud. Afterward, the surveys are downloaded and stored in an encrypted environment. The data includes entries in Bahasa; these entries were translated by the INECIS research team in Indonesia. The translated data is used for processing and analysis.

Additionally, primary data is collected in the form of interviews with experts to collect missing data to fill the gaps in the analysis. The audio files are transcribed to a text file with Amberscript transcription software. In the case of the interviews carried out in Bahasa, the interview is transcribed and translated to English by a research assistant. For these interviews is relied upon the

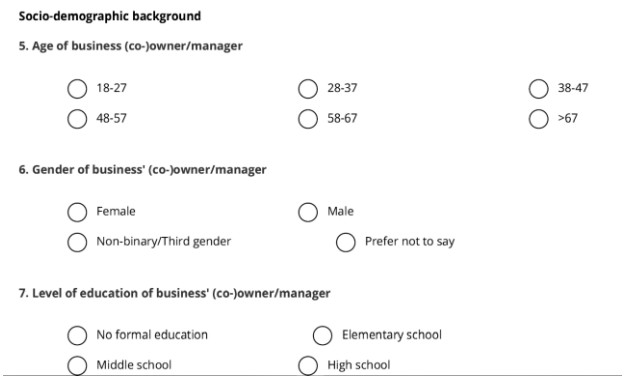
understanding of the research aims and goals, and the interpretation of the speech by the research assistant. The transcriptions are analyzed using Atlas.TI. The scientific literature is managed in Mendeley. The collected data encryption and protection password protection are managed with VeraCrypt. The data is regularly stored as a backup. Further information on the data management, such as the publication of the data on a repository, can be found in the Data Management Plan made for the INECIS project in Appendix B, to which all the used methods for data handling will adhere.

3.4 Setting up a database with characteristics of social networks and businesses

One of the sub-objectives of this thesis deals with identifying characteristics of social networks of creative sector businesses in the provided data. This sub-objective is achieved by setting up a database filled with characteristics of social networks, per business, and per network partner. According to research question 2 'meaningful characteristics of social networks found in the data' are needed. These characteristics are operationalized as characteristics of social networks of businesses and characteristics of individuals influencing the formation of these social networks recognized in the scientific literature. These characteristics are sourced from Section 2, Literature Review. The characteristics are related to *ties, location,* and *exchange of resources* in social networks. Additionally, the characteristics of business owners and managers are extracted.

3.4.1 Workflow

The first step towards building a database consists of taking a look at the survey used for data collection. The second step is to identify which attributes can be extracted from the survey data. In Figure 3a, some examples of survey questions can be seen. In Appendix A, the full list of questions posed in the survey can be found. The questions from the survey are processed into a curated list of attributes that can be extracted for the answers to the questions. An example can be seen in Figure 3b and the full list in Appendix A.

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5. Age of business (co-)owner/manager
6. Gender of business' (co-)owner/manager
7. Level of education of business' (co-)owner/manager
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Figure 3a) Example of questions from the survey b) Attributes extracted from the questions

This attributes' list is matched with the characteristics discussed in the previous Chapter 2. The list of attributes is also matched with the conceptual diagram/research plan to make visual the contribution of each attribute to fulfilling the research objective. This can be seen in the diagram in Figure 4 and the corresponding classification in Table 1.

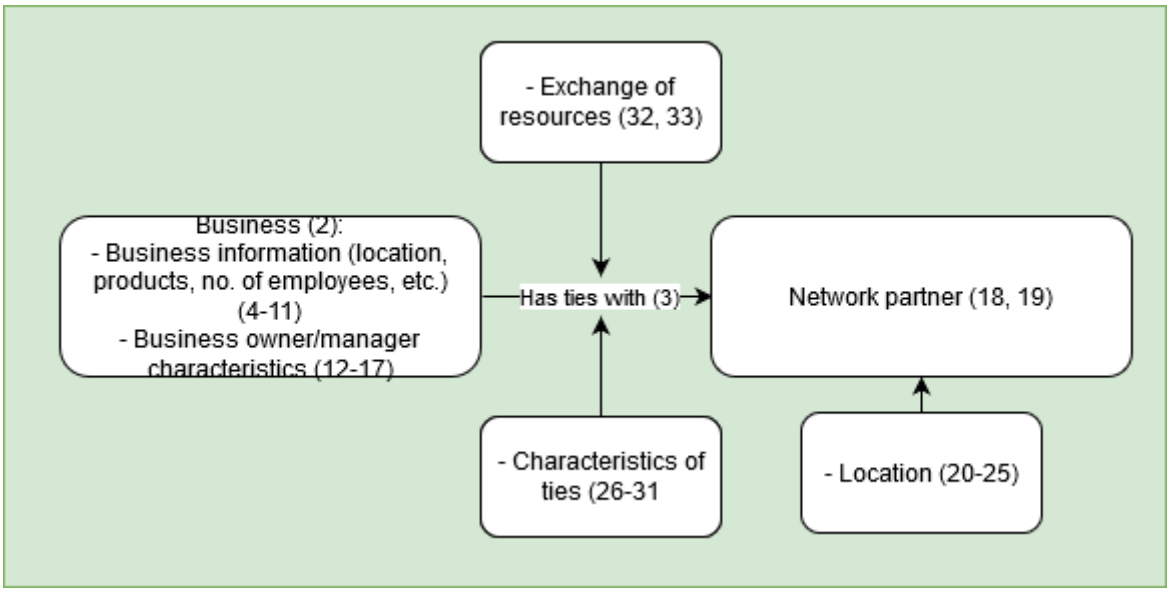


Figure 4 Characteristics from INECIS survey with the corresponding number in the database

The selected variables are exported to a database and processed using Matlab, Excel, and SPSS. Various attributes are provided in the survey as text strings in the edited data or binary data with attributes. These answers are coded using numbers, and the corresponding text answers can be found in the labels of the attributes. Some survey questions are multiple response questions; they are processes in separate columns, one per option.

The database shows the NWPs separately in a list with attributes in the columns. Categorical options of survey questions are put in columns, with appropriate value labels. Multiple response questions are split in option 1,2, and 3, and put in separate columns. Additionally, one more database with only the participating businesses is constructed. The data is transferred to the databases using Matlab software. The used scripts can be found in Appendix C. For the database with businesses, SPSS is used as the rows of the raw data correspond with the rows of the constructed data, the syntax can be found in Appendix D. Post-processing and cleaning of the data is done in SPSS.

The working of the database is in short as follows. Every business, network partner (NWP), and relation/tie has a unique identifying number (ID). The rows in the database correspond with the relations/ties, with a unique relation number. The row is filled with data on the business (origin of a tie) such as name, product/service provider, the business owner/manager such as age, gender, and education. For the network partner (destination of a tie) stored are name, location, and information on the tie itself such as supplier, end customer, and institution. The network partners (NWP) with its assigned ID is the next column. Also, information related to the relation and the business' handling of network relations is given. The NWP ID's are matched with previous NWPs and business entries into the database. Hereby, recurring NWPs have been assigned the same NWP-ID. Because businesses can function as a NWP as well, the NWP is matched with this list as well. If matched, the NWP is assigned the same ID as the business ID, as is the corresponding business. An example of the resulting database can be seen in Figure 5; this is an example filled with anonymized data as the real data is restricted for privacy reasons.

BID	Business_name	Relation_number	Business_location_x	Business_location_y	Business_location_neighborhood	Business_location_aggregate	Business_product	Business_product_classified
1	[redacted]	201	[redacted]	[redacted]	Binong	117	Women's knitwear	Fashion
1	[redacted]	202	[redacted]	[redacted]	Binong	117	Women's knitwear	Fashion
1	[redacted]	203	[redacted]	[redacted]	Binong	117	Women's knitwear	Fashion
2	[redacted]	205	[redacted]	[redacted]	Binong	117	Women's and men's knitwear	Fashion
2	[redacted]	206	[redacted]	[redacted]	Binong	117	Women's and men's knitwear	Fashion

Figure 5 Excerpt of database anonymized

3.4.2 Selected attributes from data

In Appendix A, the complete list of attributes from the survey can be seen. In this section, the characteristics found in the data are discussed. This is split out into four different elements, ties, location, exchanges, and characteristics of businesses and business owners and managers. Below the selected attributes per dimension can be found, it is summarized in Table 1.

Ties

For the ties dimension, the name of the NWP is saved, and the notion of having (or not having) collaboration partners. The type of NWP is also stored, deduced from the category the NWP belongs to, such as supplier, customer, institution, a business association. Additionally, the type of employee for the majority of employees is stored classified as family, friends or neighbors, or members of groups/associations the business' owner/manager belong to. The type of agreement with the employees is also stored.

An important decision made is the meaning of the term institution, this term can mean, organization, rules and regulation, practices, and care center ("Oxford Advanced Learner's Dictionary | Institutions," n.d.). For this research, the term is constricted to an organization as otherwise, the scope of the research would become too wide. Therefore from this point onwards, there is only referred to organizations. If an organization is present, the type of organization is also stored, such as a government or NGO.

Exchanges

For exchanges, few useful attributes are found in the available secondary data. The first one refers to what is exchanged with a collaborator, and the second one that is exchanged with an organization.

Location

For the location dimension, four attributes are extracted from the data: 1) advantages of the location, 2) disadvantages of the location, 3) NWP's location, and 4) collaborators' location. At first, the advantages of the location where the businesses are located are collected. These are used in Chapter 4, in the descriptions of the case study areas. Secondly, the disadvantages of the location where the businesses are located are collected. These are used in Chapter 4 in the descriptions of the case study areas. Both these attributes are multiple response answers and have then been split into three columns, one for each possible answer. Thirdly the NWPs' location is stored in the database and classified into five different categories: 1) within kampong/neighborhood, 2) elsewhere in the city, 3) outside the city, 4) multiple cities, and 5) 'it doesn't apply' for missing values. With multiple cities, it is indicated that the NWP is located in various cities, and amongst these cities can be Bandung as well. The classification is done with the help of Google Maps and the research assistants at ITB. Lastly, if the participant answered yes to the question about having collaborators, information on the location of the collaborator was recorded as well.

Business (owner/manager)

The data provides several descriptive details about the participating businesses. There is data on the business and data on the business owner/manager (BOM). For the business, the following attributes are stored in the database: business name, location (coordinates, neighborhood), product/service, the main source of finance, number of employees. Differences in spelling and spelling errors related to the names of the three surveyed neighborhoods (Binong, Cigadung, and Dago) are fixed to match these neighborhoods. The product is classified using the product/service groups within the creative

sector from the Indonesian government (Maryunani & Mirzanti, 2015). The product/service groups are 16 product/service groups, these are: 1) advertising, 2)architecture, 3) antiques, 4) design, 5) crafts, 6) fashion, 7) film, 8) video and photography, 9) interactive games, 10) music, 11) performing arts, 12) publishing, 13) research and development, 14) software, 15) television and radio, and 16) culinary (Fahmi, 2019; Maryunani & Mirzanti, 2015). The business finance attributes were collected through multiple response questions and are split up in three columns for each answer position, one retaining the answers given in the original survey.

For the BOM the following attributes are stored: age group, gender, educational level, migration background (yes/no, and if yes, where from), and time lived in the neighborhood. These factors are in line with the observations from McPherson et al. (2001), and Freeman (2005).

Table 1 Summary of selected attributes for database sorted by dimension

Dimension	**Attributes**
Ties	NWP (name + ID) Collaboration partners Type of NWP Type of organization Type of employee (majority) Type of agreement with employees
Exchanges	Exchanged with collaborator Exchanged with organization
Location	Location (dis)advantages NWP location (+ classified) Location collaborators
Business (owner/manager	Business (name + ID) Location (coordinates + neighborhood) Product (+ classified) Main sources of finance Number of employees Age group Gender Educational level Migration background (+ origin) Time lived in kampong

3.5 Data analysis

The database constructed in Section 3.4 is analyzed using statistical methods, and the findings are visualized using and triangulated using the data from the interviews with experts, see Section 3.6 for this. As for data analysis, taking hypothesises into account constructed in Chapter 2; these refer to *ties, exchange of resources,* and *location.* Spatial exploration of the data is important and spatial aggregation potentially plays a significant role in identifying patterns (Brandellero & Pfeffer, 2011). Spatial aggregation is also needed to protect the privacy of the interviewees. Therefore, in accordance with the INECIS data management plan, whenever information is displayed in the remainder of the thesis, it is aggregated on at least a 500m grid ("INECIS," n.d.). Aggregation can also

be done at various geographical scales such as regional, national, and global. The regional level can be further defined to a level appropriate to the data and the study area(s) (neighborhood, Rakun Warga (RW), Rakun Tatanga (RT), within the study area, or within kampong, elsewhere in the city, outside city, etc.). For the spatial exploration, the used tool in QGIS as it is open source and found to be a convenient choice. GIS tools such as ArcGIS are often used for this type of analysis (Firestone et al., 2011), but they are proprietary and thus, less accessible to perform replications or reproducibility exercises of the study. Various ideas have been collected for these visualizations; however, few have been made based on the available data, this is due to restrictions posed by the data and the time, the ideas can be found in Appendix G.

The non-geospatial patterns looked for in the data analysis are hypotheses based on the literature review in Section 2, and the local context in the study area (see Section 4). These expected patterns are tested by constructing frequency tables, cross-tabulations, and custom-made tables. The used tool for this statistical analysis is SPSS, a software package designed for the social sciences and often used in the social sciences (Conry et al., 2011). Some patterns are visual and are displayed on a suitable graph, such as a map or a diagram. These tools are frequently used methods to display (non-)spatial patterns (Firestone et al., 2011; Freeman, 2005). These visualizations are made with tools such as PowerPoint, Google Drawings, and Excel, as they were available to the researcher.

The discussion of the patterns identified in the social networks can be done with qualitative aspects and quantitative aspects of the different kampongs in the study area, the studied literature, and expert consultation. The qualitative aspects concern, for instance, type of relation, and subsector of the business. The quantitative aspects are, for example, spatial proximity, degree (number of NWPs), and a number of relations to connect with other actors.

3.6. Additional data collection: Interviews

For triangulation purposes, to promote further discussion and interpretation of the patterns, as well as to collect data on gaps in the survey data, semi-structured interviews are conducted as well, the formats can be found in Appendix F. Semi-structured interviews are a common method for triangulating data and data collection in the social sciences (Bryman, 2012). The interviews are conducted with local experts on the field to understand and discuss patterns in the data. These local experts can be community leaders in the areas of studies, government officials, people in NGOs active in the creative sector, and academics studying the creative sector in Indonesia. Interview subjects include community leaders from the three neighborhoods (CL-X coding), two academics with in-depth knowledge of the creative sector (AC-X coding), and two creative sector policymakers/experts from the government or another organization (CSP-X coding). The interviewed local experts are recognized for the work they or their organization does to aid the development of the creative sector in Bandung. Or the interviewees are recognized for their proven expertise in researching the creative sector in Bandung. Where needed, a local student assistant supports the conduction of the interviews, the interpretation, and translation of speech and interview scripts and the transcripts from Bahasa Indonesia (or Sundanese) to English. The English interview recordings are filtered for noise when needed using Audacity, an open-source tool that was proven to be effective for the task. Subsequently, the English interviews are automatically transcribed using the licensed software Amberscript.

The transcripts are analyzed in Atlas.Ti, as this has been proven to be a good tool for text analysis. The coding strategy for the analysis in Atlas.Ti is based on the preliminary data analysis (now integrated into Chapter 5). This resulted in codes related to the analyzed data; these codes can be

found in Appendix E. Also, additional codes were inductively defined based on the interview data. These codes are ‘needs’ and ‘informality’ as these categories that came up in multiple interviews. As the data is analyzed using the codes derived from the literature review in Chapter 2, the literature review links to the analysis of the interview as well. The results of the analysis of the interviews can be found in Chapter 5, in which they have been integrated in the results of the data analysis.

Chapter 4 Description of the case study area

4.1 Indonesia and Bandung

In Indonesia, the creative sector was introduced in June 2009, when the then president of Indonesia issued a Presidential Instruction on the Creative Economy, where creative industries where recognized as part of the national economy. In 2015, the creative sector was found to be the seventh sector by size in the Indonesian economy (Meutia, 2015). Apart from the sector's size, it is an important part of the economy because it is a method for urban regeneration and capitalization on cultural elements in society both for the people and the government (Fahmi et al., 2017; Gregory, 2016; Scott, 2010).

In Indonesia, the creative sector is defined within the following sixteen product groups: 1) advertising, 2)architecture, 3) antiques, 4) design, 5) crafts, 6) fashion, 7) film, 8) video and photography, 9) interactive games, 10) music, 11) performing arts, 12) publishing, 13) research and development, 14) software, 15) television and radio, and 16) culinary (Maryunani & Mirzanti, 2015; Prasetyo & Martin-Iverson, 2013). This partly coincides with the western views on the creative sector but also includes the traditional cultural economy (Fahmi et al., 2017). However, interviewees AC1 and AC2 mentioned that the creative sector in Indonesia can be quite different from this and is occasionally more crafts oriented. Fahmi et al. (2017) agrees with this notion about the creative sector in Indonesia and mentions that the Indonesian view of the creative sector also often include cultural elements. Bandung is, however, more on the western creative economy side 'quite different from other regions in Indonesia, which are generally more traditional to more craft-based industries' (Interview, AC2, 2020). It is also stated that the Indonesian creative sector is more demand-driven than the western creative sector (Interview, AC2, 2020). Interviewee AC2 mentioned that the creative sector 'It's really about social innovation. Maybe, how they learn and how they innovate, they can create new jobs from this.'

Some history of the creative sector development in Bandung; after the central government set out a Creative Economy strategy, Bandung was marked as a pilot city, as various creative city policies had already been developed by local authorities in cooperation with creative groups (Fahmi et al., 2017). The creative sector interpretation in Bandung is most close to the creative sector in the Global North (Fahmi et al., 2017; Interview, AC2, 2020). Bandung is also part of the UNESCO creative city network and known as a design city ("Creative Cities Network | Bandung," n.d.). Bandung has various creative projects going on ("CEN," n.d.; "Disbudpar Gandeng C59, Soft Launching Bandung Creative Belt dan Gelar Produk Kreatif Cigadung | Berita Inspiratif | Seinpiratif Beritanya," 2018; Kustiwan et al., 2015). Also, it is the headquarter of the Indonesian Creative City Networks (ICCN), ICCN is the umbrella organization of BCCF.

The results of the interviews reflected that the creative city policies developed in Bandung were developed in collaboration with the Bandung Creative City Forum (BCCF) (community organization, Indonesian style) (Interview, AC2, CSP1, 2020). This hints at an approximation to the triangle model for creative city development, Academics, Business, and Government, ABG, which, according to interviewee CSP1, is commonly used. In Bandung, this policy is adjusted to ABC G M, in which C means Community and M Media (Interview, CSP1, 2020). Interviewee CSP1 mentioned that M ((social) media) is a recent addition (2017). The interpretation of the community used in Indonesia is, according to AC2 and CSP1, often different than in the rest of the world. Interviewee(s) CSP1 explained that in the policy, by the community was meant, a local leader from a community group with a certain objective, and this leader is supported and is followed by the rest of the community.

One important actor in the creative city development in Bandung, is the Bandung Creative City Forum (BCCF) (Interview, CSP1, 2020). They started with 45 individuals from various backgrounds in 2007 out of frustration with the state of the physical infrastructure in Bandung (Interview, CSP1, 2020). It is important to note that BCCF started before the creative sector arrived in Indonesia (Interview, CSP1, 2020). They want to have a positive impact on the development of the city and its infrastructure and started a festival, Helarfest in 2008, this grew out as a success and continued in new iterations in the years after (Interview, AC2, 2020). After the Helarfest the organization BCCF was formerly founded in 2008 Between 2013 and 2018, the former chairman of BCCF was mayor of Bandung, he is now the West-Java governor (Interview, AC2 & CSP1, 2020). BCCF is not limited by the 'creative sector', but forms a wider initiative for improving life in Bandung (Interview, AC2 & CSP1, 2020). At first, they focused on public space, but when that got improved they widened their focus, now they focus on social enterprises, to help communities develop creative activities, they organize urban games and help communities in their development (Interview, AC2 & CSP, 2020). Currently, they are also helping to develop the curriculum for the design thinking lessons at schools in Indonesia (Interview, CSP1, 2020).

The first creative city policies which were implemented, especially for the creative city, were implemented in 2011 (Interview, CSP2, 2020). However, the city already had various creative city policies before; these are used as a template for other cities (Fahmi et al., 2017). These creative city policies were developed with several communities (not including the kampongs) in the city (Fahmi et al., 2017). The creative city policies, programs, and the sector are still in development (Fahmi et al., 2017; Kustiwan et al., 2015; Maryunani & Mirzanti, 2015). Interviewee CL2 stated that support from the government was not always consistent 'we need to propose first. If we don't, they just stand by..' The local government provides support at different governance levels (Kecimatan, Keluharan, Rukun Warga (RW), Rukun Tetangga (RT)) for creativity in the forms of equipment, exhibitions, awards, and training (van Harten, 2020).

Government *organizations active in the Bandung* creative sector are the Office of Tourism and Culture with the provision of co-working spaces, development of travel packages, a web page, and the Creative Belt project, of which Cigadung is part. The Office for Small and Medium-Sized Enterprises provides training and equipment for such spaces (Interview, CSP2, 2020). The Office for Spatial Planning is interested in studying the creative sector in the study areas (and possibly in the creative sector in kampongs, was unclear from interviews), because 'they're quite interested in the formality of the land that is used for this kampongs.' (Interview, AC1, 2020). In the case of training (not specified) for the people in the community, the Department of Labor is involved, and the Department of Agriculture and Food Security (Interview, AC1, 2020). Bandung has 120 universities; these universities often have programs, courses, and projects for (creative) kampongs and communities (Interview, AC1&2, CSP1&2, CL3, 2020). The Cooperatives Department supports the development of cooperatives in Bandung and the deployment of activities (Interview, CSP2, 2020).

Besides the NGO BCCF, there is the Council for Craft, an organization active at the national, regional, and local levels and supports creative initiatives (Interview, CSP1 & CL1, 2020). Additionally, there is Komunitas Taboo, a community organization founded in 2002 to support the development of the people in kampong Dago Pojok with art and education (Kustiwan et al., 2015; Interview, CL2, 2020). This project is called 'Kampong Kreatif' and resulted in a concept for kampong's improvement, and it has been spread to multiple kampongs in Bandung and other cities in Indonesia (Adiati, 2016; Kustiwan et al., 2015; Interview, CL2, 2020). Lastly, Initsiatif, an NGO, supports urban development.

The research area of the INECIS projects in three areas, with representative kampongs in the creative sector in Bandung, Indonesia, known as Binong Jati, Dago, and Cigadung, which can be seen in Figure 6. About these, recent data were collected and made available for analysis since they were studied as part of the "Informal Economies and Creative Industry Strategies" (INECIS) study by ITB, INISIATIF, and ITC and are according to interviewees very different ("Global impact | INECIS - ITC major project," 2019; Interview, AC1 & AC2, 2020). The surveys are done by the INECIS project, yield, as of now, unstudied information on social networks which is utilized for this study. In the next section, the selection of kampongs as a unit of measurement is justified, and the local context of the kampongs, which make up the majority of the data, is explored.

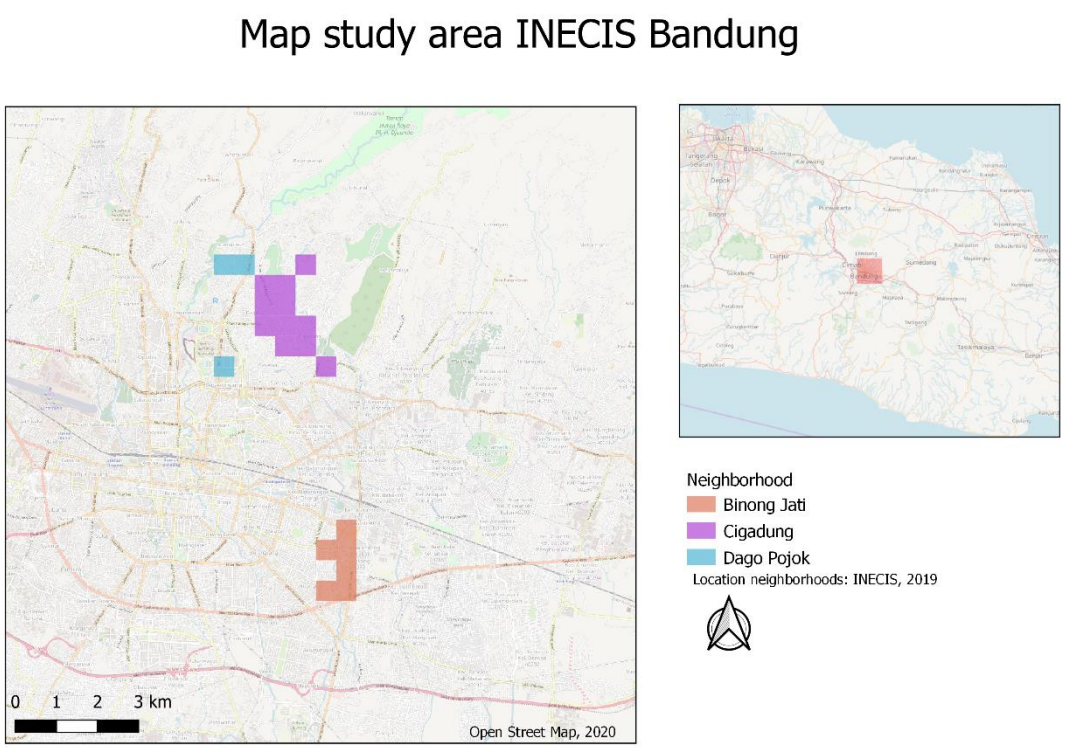


Figure 6 Map of the study areas of the INECIS project

4.2 Case study area

This section will deal with why kampongs are a relevant object of study and what the local context is. Kampongs are one of the most relevant human settlements' configurations in Indonesia, with 70-85% of the country's urban population living in them (Kustiwan et al., 2015). Kampongs are informally formed settlements that mainly house low-income people, though middle and high-income people live there as well (Anindito, Indriansyah, Maula, & Akbar, 2019). The kampongs are informally developed areas of the city, and this informality has a big influence on the development of the creative sector (Interview, AC2, 2020). Various economic activities are present, and land tenure can be formal, semi-formal, and informal (Anindito et al., 2019). Kampongs exist as a result of informal city development, and they are organized by social mechanisms (Anindito et al., 2019; Kustiwan et al., 2015). The kampongs are a unique place for the creative sector because the area is informal, which has a big influence on the creative sector (AC2, 2020). Many people work in the

kampongs, there are, for example, grocery stores, salons, boarding houses, and small industries, for many people the kampong where they live is also the place where they work (Anindito et al., 2019; Kustiwan et al., 2015; van Harten, 2020).

The kampongs are left out of public policy as a concept, although kampongs also house the creative sector (Adiati, 2016; Kustiwan et al., 2015; Prasetyo & Martin-Iverson, 2013). Kampongs were included in the Kampung Improvement Program in the 1960s, delivering improvements such as footpaths and piped water (Milone, 1993). However, nowadays, the current strategies of a city like Bandung do not have a clear definition of the concept kampong and do not have governmental level public policies to address problems in kampongs (Anindito et al., 2019). This exclusion can be due to differences between conceptions of governance layers, interviewees mention the governance layers of Kecamatan, Keluharan, Rakun Warga (RW), and Rakun Tatanga (RT), (City > Kecamatan > Keluharan > RW > RT), instead of the kampongs as a governance unit (Interview, CL1&CL2, CL2, CSP2, 2020).

As stated earlier, the area of study are three neighborhoods in Bandung; these are kampong Binong Jati, Cigadung, and Dago Pojok. The Dago area is mainly represented by the kampong Dago Pojok. These neighborhoods share some characteristics and have differentiating characteristics. Their differences relate mainly to aspects such as place of origin of the business owner or manager, the current state of the creative sector, and type of industries and creativity. These neighborhoods also all have their own identity, for example, Dago Pojok in the Dago area is a self-defined Creative Kampong, Binong Jati is a Knitting Kampong, and in the Cigadung area, there is a recently established Batik Kampong. Therefore, these neighborhoods will be discussed below one by one, as they are different from each other.

Dago Pojok. The most interesting and most represented part of the Dago area in this research is Kampong Dago Pojok. This is a diverse kampong with a variety of creative industries such as performing arts, fine arts, and crafts, and fashion ("INECIS," n.d.; Kustiwan et al., 2015; Interview, CL2, 2020).

The kampong is a creative kampong or 'Kampong Kreatif' and is a tourist attraction as well (Adiati, 2016; Kustiwan et al., 2015; Prasetyo & Martin-Iverson, 2013). Kampong sports murals and cultural workshops (Adiati, 2016). Its creative development is supported by the NGO, 'Komunitas Taboo,' which was founded in 2003 as an active response to the exclusion of the community from government plans to redevelop the area of Dago Pojok. The government plan was defined as 'a neoliberal approach to urban development which supports the creative industries and associated forms of property speculation without distributing the benefits evenly among local urban communities' (Prasetyo & Martin-Iverson, 2013). According to interviewee CL2, the organization Komunitas Taboo did not agree with the exclusion of the community in the kampong from this project and 'tried to oppose the policy through legal ways, advocacies. But then we lost on that front. As an alternative, we tried going through the route of making a cultural movement.' (Interview, CL2, 2020). It can be said, that Komunitas Taboo started in the neighborhood to solve social problems, to empower the people and give people tools to use their potential, several artistic and cultural activities, and a school was started in the area (Interview, CL2, 2020; Kustiwan et al., 2015). The project started by assessing the ability of the people in the different sub-areas (RT's) of the kampong (Interview, CL2, 2020). Accordingly, workshops were set up, for example, the murals which were made in 2009 (Interview, CL2, 2020). It soon became a tourist destination (Interview, CL2, 2020).

Activities organized are, for instance, puppet shows and cultural festivals (Prasetyo & Martin-Iverson, 2013). If a tourist wants to take part in a workshop or see a performance by one of the businesses

you contact the leader, the performance or workshop would be prepared, and you would be welcome to see the performance or take part in the workshop (Interview, AC2, CL2, 2020). The project was deemed very successful and enabled other businesses to open up, such as a restaurant (Adiati, 2016; Interview, CL2, 2020). The idea and the methods of the Kampung Kreatif project have spread to at least 30 other kampongs, according to a review of Kustiwan et al. (2015). The project success could be related partly to the inclusion of the community, along with its focus on improving the community through its own cultural values (Adiati, 2016; Interview, CL2, 2020). Additionally, the project brought with it a school in which state-recognized education is provided to both children and adults (Adiati, 2016; Prasetyo & Martin-Iverson, 2013; Interview, CL2, 2020).

Based on the interviews conducted, it was highlighted by interviewee CL2 that in 2016, the leadership of the area changed, and soon the activities stopped. The initiator regretted that the project was not being continued but acknowledged that many of its goals had been achieved (a reduction of poverty, creative awareness, cultural values) (Interview, CL2, 2020). The studios founded as part of the project were still active, and many of the older inhabitants continued to support the activities. Younger people often participated without knowing the history behind these spaces. There is still a government project supporting the creative sector in Dago Pojok.

Kampong Binong Jati and houses the most businesses from the three neighborhoods studied. The industry was established in the mid-60s and grew in the 70s with new knitting technologies (Purnamasari, 2017). 80% of the businesses in the knitting industry are family businesses, there are more than 400 businesses and at least 4000 laborers, some businesses are spin-offs of existing businesses (Purnamasari, 2017; CL3, 2020). Businesses are focused on knitting, and therefore most businesses are in the fashion sector (Purnamasari, 2017). In an interview with CL3 and AC2, it was mentioned to be problematic that for years the same products are made in the same way. CL3 and AC2 (2020) mentioned that there is a need to keep up to date with new technologies and that they lack the capital to make such purchases.

The businesses often collaborate in the form of makloon (subcontracting) or in dividing steps in the production chain. There is a cooperative called Koperasi Industri Rajut Binong Jati (KIRBI) and a community called 'Kampoeng Radjoet' (Interview, CL3, 2020). KIRBI is a cooperative or a business representing the businesses in Binong Jati (Interview, AC2 & CL3, 2020). Interviewee AC1 and AC2 (2020) mentioned that the representation is generation-specific and not uniform to all involved businesses. In 2007, Binong Jati destined a tourist destination by Bandung's city government, the cooperative or business KIRBI is working to improve the tourism potential with a showroom of products, establishing their own brand, direct customer sales, and tourism packages (Interview, CL3, 2020). Businesses in Binong Jati are active on social media, create content on Youtube, and make e-commerce (CL3, 2020). The kampongs entrance road is inadequate, an opinion frequently voiced by the business owners and managers, and a community leader in Binong Jati (Tobing, 2011; Interview, CL3, 2020). From the results of the INECIS survey, it can be noted that many migrant workers are employed in the kampong ("INECIS," n.d.). In 1970, the 'Sentra' was defined, an industrial centrality concept, and later an urban policy on its formation was defined. This was major support for the development of the industry in Binong Jati (Purnamasari, 2017). They work together with universities for information and training (Interview, CL3, 2020).

Cigadung is the most spatially spread out neighborhood from the three with fewer businesses than Binong Jati. Its representative kampong is the 'Batik Kampong,' which is established as part of a project of the small and medium-sized enterprises agency, and it is seen by some as a branding exercise. The Batik Kampong is a recently started project in which five people per RW (RW – a geographical unit to divide the neighborhoods) (10 RWs in total in Keluharan (neighborhood)

Cigadung) were trained in making Batik (Interview, CL1, 2020). In this case, all participants in the project were women, and receive equipment as well (Interview, CL1, 2020). The workshops were organized and hosted by Batik Komar, one of the three large businesses in the neighborhood (Interview, CL3, 2020; Herdiana, 2016). The equipment was given with the promise that the participants would start producing Batik. Another project in the area is the creative belt, aimed at establishing one-stop tourism packages in which all the activities are located in one neighborhood (Interview, CSP2, 2020). The designation Batik Kampong was done by the government in 2016, and it is more recent than the designation of Binong Jati and Dago Pojok (Herdiana, 2016; "Kampung Kreatif Wisata Baru di Bandung Ini Wajib Kamu Datangi!," n.d.; Kustiwan et al., 2015). The participants in the creative belt project are larger businesses in Cigadung, such as Batik Komar, C59, and Batik Hasan (Interview, CSP2, 2020).

The kampong is commonly visited by local and foreign tourists who want to learn about Batik, and there are three attractions teaching about Batik, Batik Komar (1988), Batik Hasan (1978), and Pondok Pesantren (2004) (Herdiana, 2016; "Kampung Kreatif Wisata Baru di Bandung Ini Wajib Kamu Datangi!," n.d.). Pondok Pesantren works together with a local school ("Kampung Kreatif Wisata Baru di Bandung Ini Wajib Kamu Datangi!," n.d.).

4.3 Characteristics of the kampongs

As the studied neighborhoods, Binong Jati, Cigadung, and Dago Pojok all have their own characteristics. In the following tables, figures, infographics, and maps, the characteristics influencing social networks found in the INECIS survey, and the differences per kampong are visualized. Figure 7 and Figure 8 give a general picture of the participants in the INECIS project. Figure 7 shows the businesses in the three neighborhoods, what their businesses are like, and in which sectors they are operating. The characteristics are given near the geographic location (colored boxes).

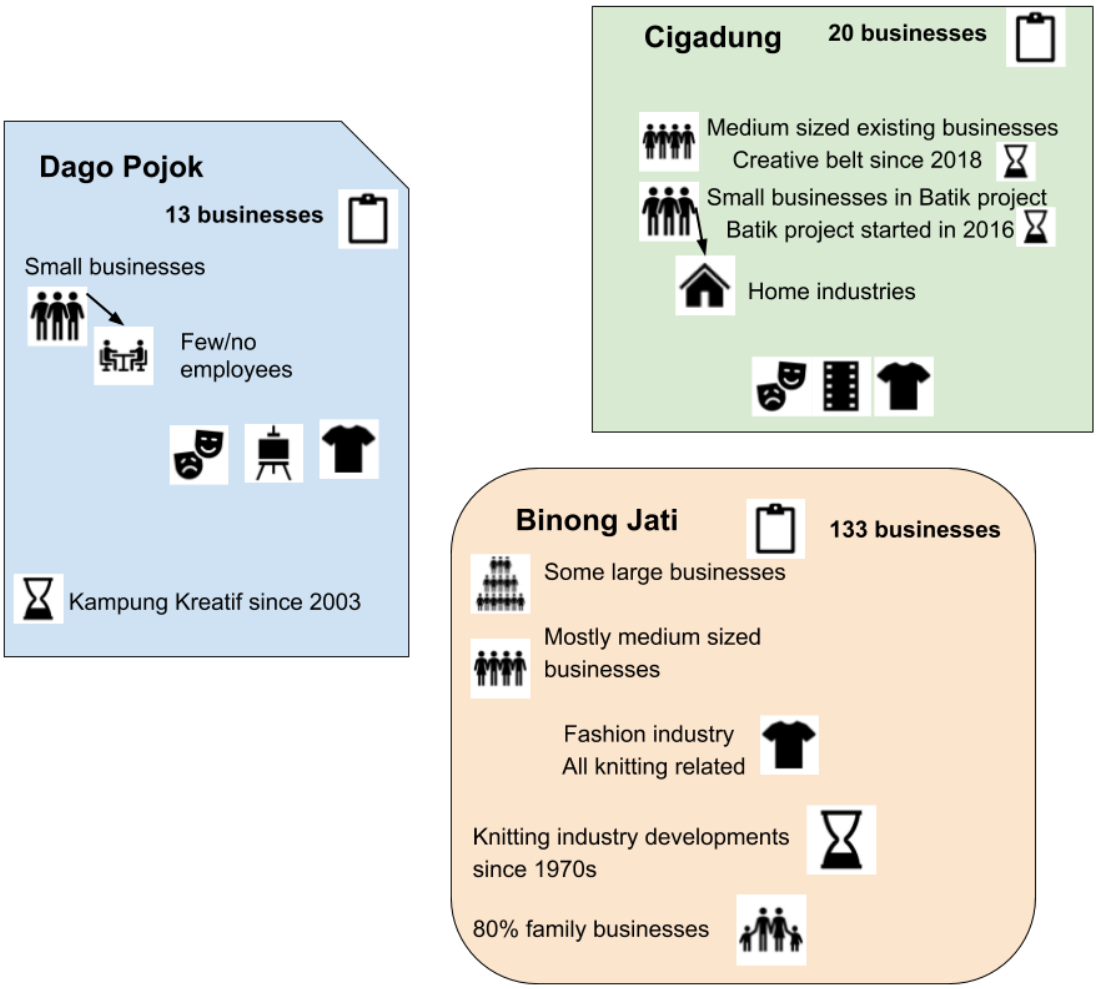


Figure 7 Businesses in the INECIS survey per neighborhood ("INECIS," n.d.)

Figure 8 portrays the business owners and managers who are heading the businesses participating in the INECIS survey. The general statistics are given in the white box in the middle, and the specific characteristics are located near the geographic location of the neighborhood (colored boxes).

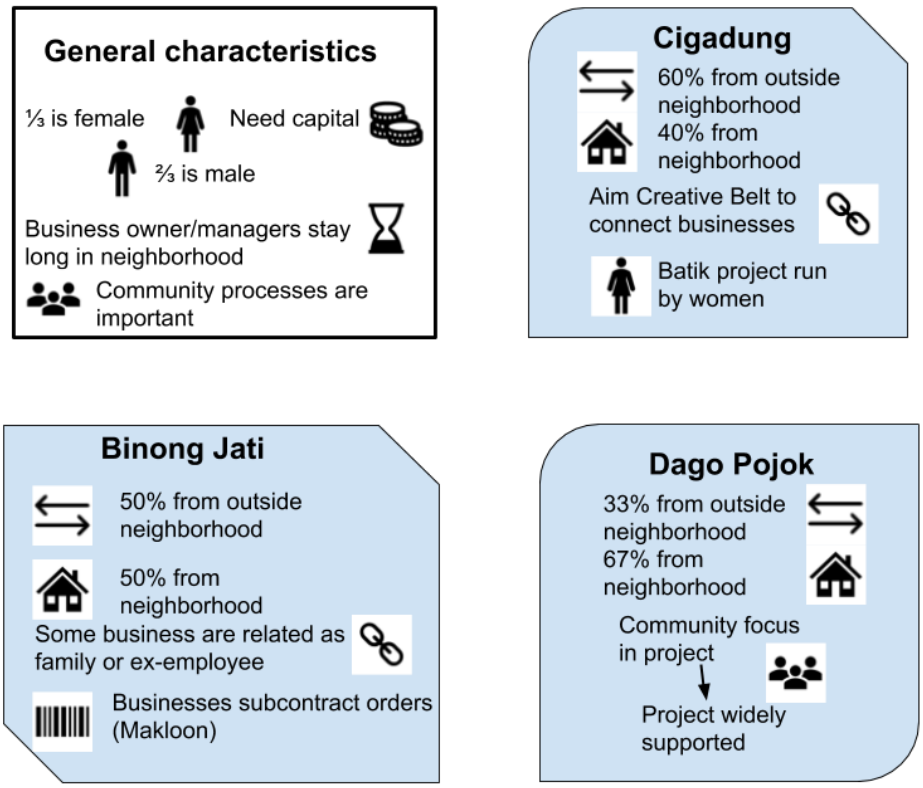


Figure 8 Business owners and managers in businesses in the INECIS survey ("INECIS," n.d.)

In Figure 9, the composition and number of creative sector businesses aggregated per kampong can be seen.

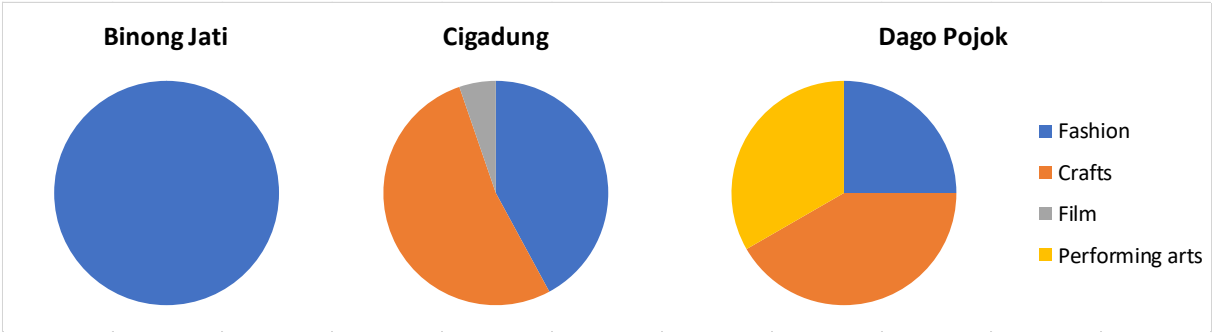


Figure 9 Product group within creative sector (INECIS, 2019)

Figure 10 shows the educational level of the business owners managers aggregated per kampong.

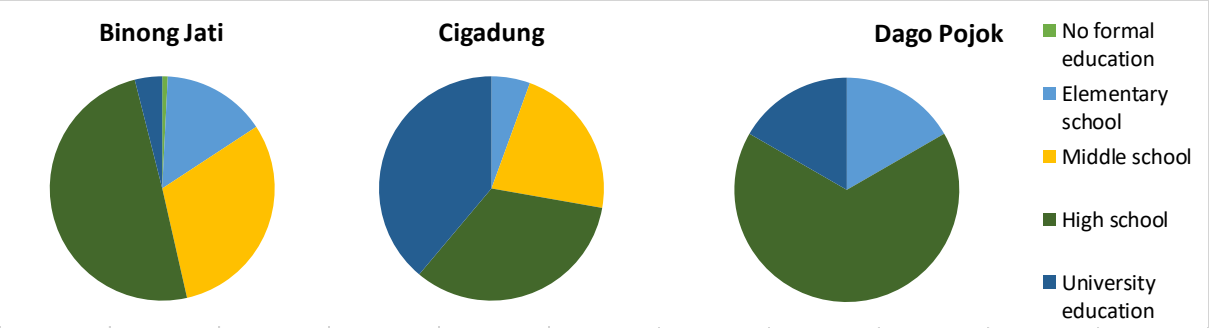


Figure 10 Educational level of surveyees (INECIS, 2019)

Figure 11 shows the age groups of the business owners managers aggregated per kampong.

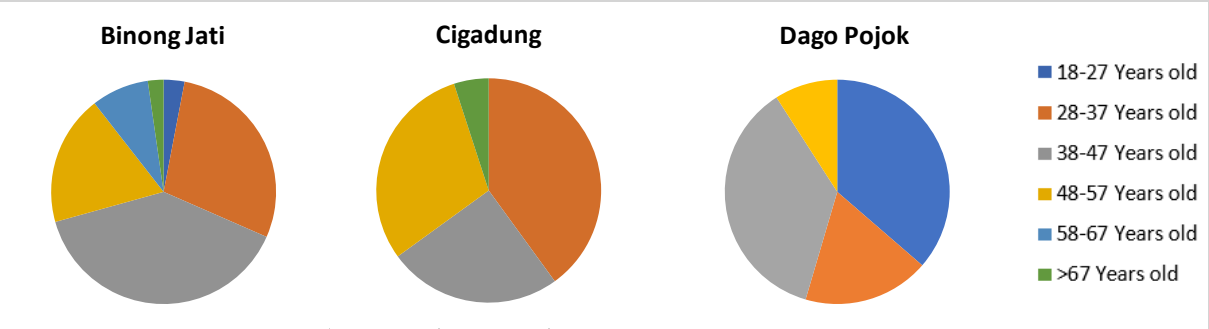


Figure 11 Age of surveyees by age groups (INECIS, 2019)

Figure 12 shows the location where the majority of the employees live aggregated per kampong.

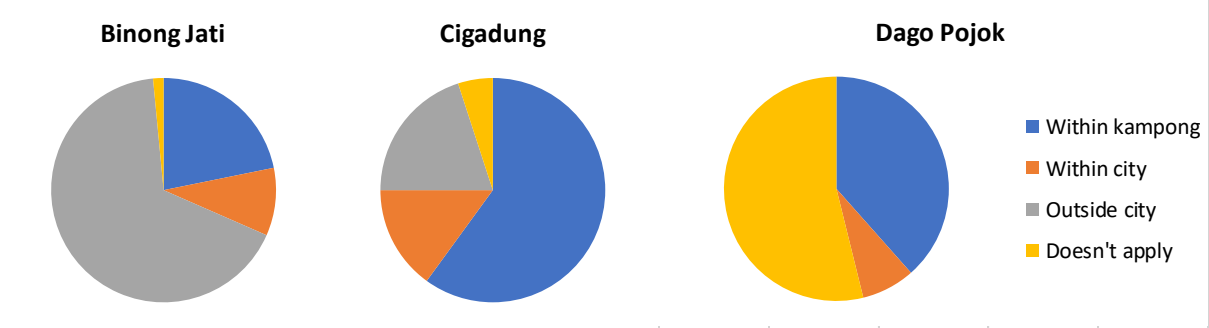


Figure 12 Living location of majority employees (INECIS, 2019)

Figure 13 shows the time the business owners and managers spend in the kampong aggregated per kampong.

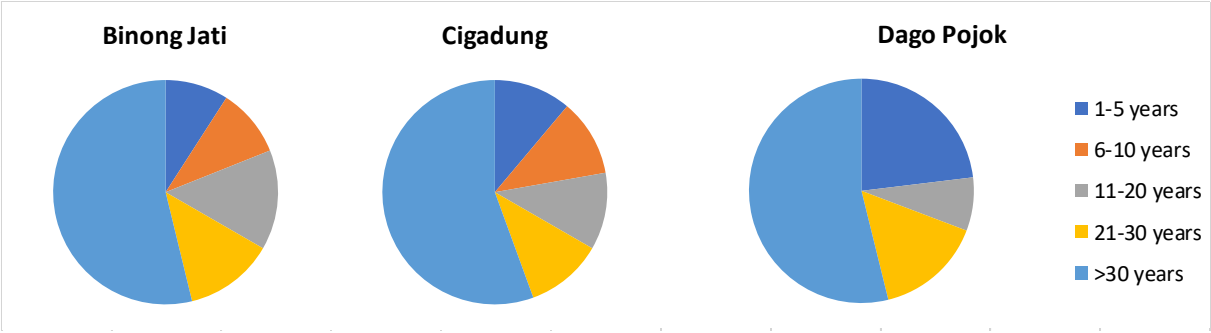


Figure 13 Time surveyee lived in neighborhood (INECIS, 2019)

Table 2 shows the advantages and disadvantages of the neighborhoods, as reported by the surveyees. This can work as an impression of how the surveyees experience doing business in the neighborhood.

Table 2
Currently, what are the three main (dis)advantages of this location?

Location	Binong Jati	Cigadung	Dago Pojok
Advantage			
Close to suppliers	114	5	1
Close to similar business	69	3	
Close to customers	26	5	6
Close to home	19	11	8
Close to business partners	15	3	3
Close to transportation providers	12	2	5
Access to public infrastructure	10	3	
Access to land	8	3	
Low cost of land	5	5	
Close to the city center			6
Support by community/NGO			4
Disadvantages			
Lack of support from the government	51	3	4
Lack of access to land	31	6	
Lack of support by community/NGOs	20		3
Lack of public infrastructure	19	2	1
Distance to similar business	15		1
High cost of land	15		8
Distance to customers	11	4	4
Distance to suppliers	3	6	
Distance to city center	2	2	
Distance to transportation providers	2	4	
Distance to home		1	
Distance to city center		2	
Distance to business partners		1	

In the question related to advantages and disadvantages, there also was a category called ‘others,’ the related answers are found hereafter. In Binong Jati, cited in the others category are the advantages, the legacy of the area, the knitting center, central location, and access to spare parts, logistics and knowledge were mentioned. Also, some references were made regarding the sufficient availability of employees and labor and employees. Disadvantages in the category others are made referring to a lack of employees, and issues related to employees such as housing for employees, difficult employees, and employees changing jobs. There were also concerns with regard to the quality of the infrastructure being bad, and about the competition of other businesses (not specified how) and imports from China. In Dago Pojok, there are issues about the lack of locations for training, and business being located in an alley and not being widely known.

Chapter 5 Results and discussion

The overall objective of this thesis is to characterize and analyze the social networks in the creative sector in urban kampungs in Bandung. This is achieved using hypotheses on the social network characteristics found in the literature. In the summary of Chapter 2, various hypotheses with respect to the expected findings in the data analysis are stated. These hypotheses are used as a guiding thread for the data analysis in this section, all hypotheses except for number eleven have been tested. For convenience, the hypotheses are grouped in the previously used characteristics of social networks, namely *ties, exchange of resources,* and *location*. The type of ties with employees, internal and external ties with other businesses, the involvement of the community in the creative sector, and ties with other organizations are the factors considered to study the ties that exist within the creative sector. Another aspect of the findings in this study involves the exchange of resources within businesses, between businesses and organizations, and the significance of knowledge exchange between businesses and their NWPs. For the location, the differences between the study area and the location of NWPs are studied.

5.1 Ties domain

For *ties,* the hypotheses for this thesis are related to the type of tie with employees, the internal and external relations of businesses, the businesses' community involvement, and the ties with organizations. As mentioned by Eijdenberg et al. (2019) and Gregory (2016), the family or extended family play a significant role in starting and maintaining a business for getting initial funding and as a source of labor; thus, this is expected to be the most frequent type of tie observed within the business in Indonesia. From Bathelt et al. (2004) and Clare (2013), businesses are expected to have ties with businesses in the same sector and geographical area. The community is expected to be involved with the creative sector businesses based on the insights of Adiati (2016). Also, businesses are expected to have ties with organizations, such as NGOs, professional organizations, the government, and banks for support (Alam et al., 2019; Delgado et al., 2014; Prasetyo & Martin-Iverson, 2013).

Family or extended family ties are a common type of tie with employees for a starting business, especially small businesses. To study this, the survey done by the INECIS project team collected data on the number of employees of the creative businesses, as well as on the ties between the majority of the employees and the business owner or manager. One of the questions in the INECIS project´s survey, from the secondary data, asks the business owner/manager about the type of ties or relations they hold with the majority of employees. Another question in the INECIS project's survey asks about the number of employees. The two questions are used to extract the largest businesses (most employees) within the category type of ties with employees. The results can be found in Table 3.

Table 3

Type of ties between business owner or manager with the majority of employees and the largest number of employees in the category

Type of ties with the majority of employees	The largest business in category [No. of employees reported]
Family or extended family	40
Worked before for competitors	60
Friends and neighbors	250
None of the above	400

The numbers in Table 3 seem to confirm the aforementioned assumption that small businesses rely on family ties, which is not the case with larger businesses (with more employees). Interviewees AC1, AC2, CL2, and CL3 cite that small businesses employ people on a project base, and then, these are mostly family, friends, or neighbors living close by. Interviewees also stated big companies hire employees full time, mostly these employees are 'from the streets' or sourced locally via an announcement (Interview, AC2, 2020). Furthermore, they highlighted employees are often paid piecewise and are often self-employed (Interview, AC1 & AC2, 2020). To the interviewees, it was not entirely clear how employees, apart from family, friends, or neighbors, found their way to the businesses (Interview, AC2, 2020). Also, the insights from the interviews showed many employees in Binong Jati were from outside and that employees often stay in the same business as the work is quite specialized (Interview, AC2, 2020). The category 'worked before for your competitors' is often cited in Binong Jati. This could possibly be related to challenges mentioned by business owners/managers (see Section 4.2) about competition, workers leaving, and workers' availability. Interviewees agreed with the shortage of workers in Binong Jati; the work is specialized, and not a lot of people are willing to learn the skill (Interview, AC2 & CL3, 2020). It can also be related to the presence of a high number of spin-offs in Binong Jati. Often businesses in the same field are started by family members of employees (Interview, CL3, 2020).

Business to business ties are expected within the creative sector (Bathelt et al., 2004; Clare, 2013). To check if the businesses have relations with each other, the data collected on NWP names are compared with the names of the businesses. If the business is both an NWP and a surveyee, it is flagged by assigning the same number to the NWP as has initially been assigned as ID to the surveyee. Additionally, the answers to the questions, 'Has this business collaborated with other businesses in the last three years?' and 'What has been the purpose of the collaboration?' (see Annex XX, questions 24 and 24b) are used for the analysis, to identify whether there are ties between the businesses who participated in the survey. Also, the conducted interviews are analyzed for more information. In the studied data, there do not seem to be businesses recurring as NWPs.

There are 50 businesses who replied with yes to the question about having collaborations in the last three years or not. These businesses gave 42 reasons to collaborate, given answers range in, for example, to help fulfill orders, to make products such as dolls and clothes, and promotion; other answers can be seen in Table 4.

Table 4

Reasons to collaborate with other business

Binong Jati	Cigadung	Dago Pojok
Fulfilling orders	Producing	Show product
Helping with orders	Doing projects	Develop a new product
Producing specific products such as vests or doll clothes	Exchange information	
Funding	Promotions	
Increasing profits or income		
Marketing		

The first observation about businesses not recurring as NWPs can mean two things, the businesses do not work together, or they do not report each other as an NWP. The second observation is that various businesses report collaboration on placed orders and for other reasons, as seen in Table 4.

Therefore, it is expected that businesses work together and have ties with each other, whereas this is not reported directly. In this regard, the interviewees also reported the businesses in these areas to have ties with each other.

Interviewee AC2 reported that businesses in the creative sector depend more on ties than businesses in the non-creative sector businesses. This is because ties are formed based on similar interests and backgrounds instead of only professional interests, which is the case, according to AC2 in other sectors. Business ties are maintained in person but also via Whatsapp, Facebook groups, Yahoo Messenger, and Instagram, among others (Interview, CL2, CSP1, 2020). Businesses have ties to learn how to use new technologies such as mobile apps and new equipment, marketing, fulfilling orders, and logistics (Interview, CL3 & CSP2, 2020). The businesses also exchange information about suppliers to negotiate lower prices (Interview, AC1 & AC2 & CL3, 2020).

Some ties between businesses exist because the business is run by a family member or is a spin-off company (Interview, CL3, 2020). Family members or employees often start a new business because they want to specialize or have discovered a new production technology, these businesses have ties to the 'mother' business (Interview, AC1 & CL3, 2020). Businesses also have ties because they fulfill different phases in the production process. Social relations are said to be supporting people to show their creativity, and they are facilitated in the Creative Entrepreneur Network (CEN). In Binong Jati, interviewees stated that there must be competition between the businesses as they have a very similar profile. Despite this, they also share information between businesses. Aside from business to business sharing of information, they also share information within families and between generations. Further, it is stated that in Binong Jati, ties are to help each other to sell products to customers, and to guarantee a good price for produce and raw materials by cooperating with each other. They also want to build a strong brand, incorporate knowledge from educated youth, to make a showroom, attract tourists, and stay strong together. In Cigadung, businesses are connected to collaborate via festivals and to offer tourist packages (Interview, CSP2, 2020). Businesses in Cigadung also need more external ties (Interview, CL1 & CSP2, 2020). Businesses in Dago Pojok collaborate on tourism packages and between artists (Interview, CSP2, 2020).

Community involvement is expected to be involved with creative sector businesses, and participating in these as employees or by supporting the business formation, as noted by Cole (2007). Communities mean, in the Indonesian context, often a group of people with similar interests with one (elected) leader who makes the decision (Interview, AC2 & CSP1, 2020). To verify this assumption, data coming from the question of community organization is used. Additionally, the names submitted as the answer to the question about which community organizations they have relations with are also used in this point. The results can be found in Table 5.

Table 5

Is this business a member of any community associations/organizations/development in the neighborhood?

Businesses total: 166	**Binong Jati: 133**	**Cigadung: 20**	**Dago Pojok :13**
Businesses which replied yes: 19		Names submitted: 23	
Name	**Number of times mentioned**		**Located in**
KIRBI	1 (14 as professional organization)		Binong Jati
Kampung Batik	5		Cigadung
Kampung Kreatif	6		Dago Pojok
Name is mentioned once	11		

Concluding the results in Table 5, in Cigadung and Dago Pojok, there seems to be a significant role of the community organizations, Kampung Batik (Cigadung) and Kampung Kreatif (Dago Pojok) based on the surveys as they have recurring names of community organizations. These organizations can possibly be seen as central in the social networks. Koperasi Industri Rajut Binong Jati (KIRBI) was mentioned once as a community organization and 14 times as a professional one. Despite this difference, it can be stated that Binong Jati also has a central community organization that is, however, according to interviewee AC2, only partly representing the community. The interviewees mentioned the importance of the community leader. If this person is supported and actively doing projects, the projects are successful. Dago Pojok is a good example of this. The project was very successful until 2016, but in 2016 the leadership changed, and the activities stopped (Interview, AC2 & CL2, 2020). Interviewee CL2 underlined this, 'For now, for the past year, it's been.. inactive. The organization didn't have ideal regeneration.' Meaning that the current leadership was not very actively organizing activities (Interview, AC2, CL2, 2020). The whole community was included in the projects, so the people who were closely involved in the project continued with (parts of) the project after the leadership changed (Interview, CL2, 2020). The importance of the community is supported by interviewee CL3, who argues that it is very important that the business community in Binong Jati supports the new showroom development, which KIRBI is after (Interview, CL3, 2020). The government and the BCCF both try to support communities with their programs (ABC G M, coworking spaces); both organizations try to connect with communities (Interview, CSP1 & CSP2, 2020).

Businesses and organizations are expected to have ties, organizations involved are NGOs, professional organizations, the government, and banks for support. The data used to assess this question comes from the survey question about support from institutions to the businesses (Question No. 31 E in Appendix E). This data indirectly indicates a tie between the surveyed business and the institutions. Also, data from the questions on business associations and community organizations is used, as seen in Table 6.

Table 6

From which type of institution has this business got assistance since it started?

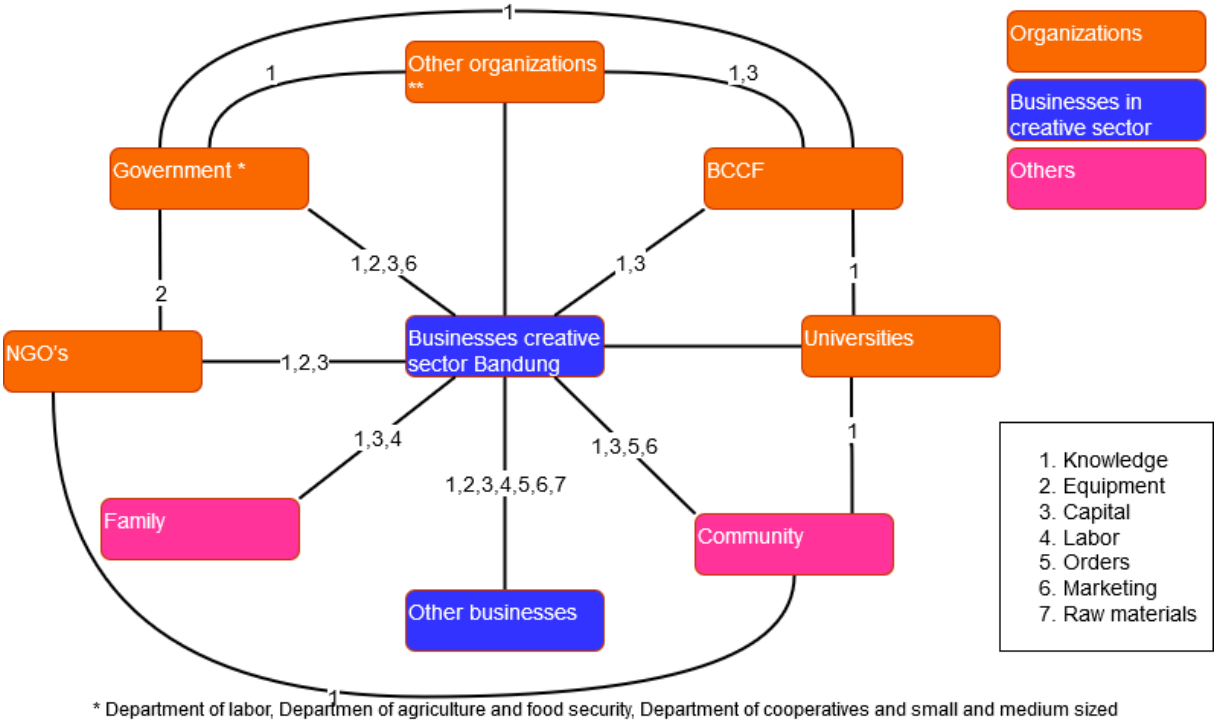
Businesses reporting to receive support from institutions:	33
Type of institution	**Frequency of answer**
Community or community associations	12
Community organization	9
Local government	9
Central government	3
Bank(s)	3
University	1
NGO	1
International organization	1

From Table 5 and Table 6, it can be seen that various organizations have been reported as relations of the businesses. In the interview with CL3, it came forward that various community associations worked with universities for training purposes via a Memorandum of Understanding (MoU). For example, in Binong Jati, the business management department (SBM) of ITB is active, and various businesses have ties with KIRBI (Interview, CL3, 2020). They also have ties with the government and schools for visits and also participate in the young entrepreneur network in Indonesia (Interview, CL3, 2020). For training, there are ties with the local government agency on small and medium-sized

enterprises, industry, the city [sic], province, and the ministry (Interview, CL3, 2020). The interviewee in Binong Jati notes that the ties with organizations are better than in the past, due to a better understanding of the benefits by the people. Interviewee CL3 also expressed his hopes the ABC G M model works as they need help. In Cigadung, the local and provincial governments support the development of the Batik Center by taking the people to exhibitions (Interview, CL1, 2020). Also, the crafts council and the provincial government departments of industry and trade, and cooperatives help with marketing (Interview, CL1, 2020). The local government checks in with the people who are participating in the project now and then, to see what is being done with the equipment (Interview, CL1, 2020). In Dago Pojok, the government was involved in three festivals in 2012, 2015 and 2018, besides these collaborations and a visit from the mayor, the interviewee CL2, provides less information about government involvement. However, the interviewee CL2 mentions difficulty with the higher levels of the city government representatives (at the RW, keluharan, and kecamatan levels) as they do not see the benefits of certain projects in the area. In Dago Pojok, there is an NGO involved, and there are relations with the BCCF (Interview, CSP1, CL2, 2020). The government aims to have ties with the community and is actively helping to establish more business to business ties (Interview, CSP2, 2020). They have relations with other organizations, namely Indonesia Young Entrepreneurs' Association (HIPMI), Tourism Support Group, and youth organizations, to arrange help for the creative sector (Interview, CSP2, 2020). Help in the form of training courses and also equipment as told by interviewee CSP2, 'we had donations from [inaudible organization], they donated sewing machines for the co-working program.' The government also helps with ties with a bank which supplies small loans to businesses, and they also have relations with the BCCF (Interview, CSP2, 2020). The BCCF is also having ties with businesses, the communities, universities, and the government (Interview, CSP1, 2020). Various interviewees mention the ABC G M model and that they work with it (Interview, AC1 & AC2, CSP1 & CSP2, CL1 & CL3, 2020).

5.2 Exchange of resources domain

In the exchange of resources domain, the exchange of resources between businesses themselves, between businesses and organizations, and the importance of knowledge exchange is studied. According to Alam et al. (2019), Asheim & Coenen (2005) and Silverman (2000), it is expected that businesses help each other by exchanging resources such as knowledge, capital, and labor. Delgado et al. (2014), Kustiwan et al. (2015) and Prasetyo & Martin-Iverson (2013) note that organizations exchange resources with businesses as well, and that these exchanges are expected in the forms of knowledge and capital. Asheim & Coenen (2005) and Parida et al. (2017) discuss the importance of the exchange of knowledge with different knowledge bases, internally and externally, to the cluster, this is expected in the study areas as well. The results of the data analysis and the interviews are summarized in Figure 14. In this figure, the different actors are identified, and their resources exchanged, roughly grouped into seven groups, are shown. Further in-depth descriptions and discussions can be found in the subsequent text.



* Department of labor, Departmen of agriculture and food security, Department of cooperatives and small and medium sized enterprises, Provincial government department of industry and trade, National government
**Bank, Crafts council, HIPMI, Tourism support group, Youth organizations, Young entrepreneur network
(INECIS, 2019; Interviews, 2020)

Figure 14 Summary of resources exchanged between creative sector businesses and their NWP's

The business to business exchange of resources hypothesis is assessed using the INECIS collected data on collaborations. This is also split per neighborhood to see if there are variations among them due to differences in characteristics of the surveyees. The specific data used for this assumption is data collected for the NWPs and the question on reasons to collaborate also used in Section 5.1. The data collected on the NWPs are indirectly related to exchanged resources as for instance, a business exchanges goods and capital with a customer and supplier. The data from the previously mentioned question is an indirect indication of the exchange of resources.

All businesses interviewed reported having one or more NWP(s). The 166 businesses which filled in the survey report in total 693 relations with community organizations, business associations, suppliers, customers, and institutions. As stated before, the businesses do not report each other as NWPs; however, they seem to collaborate with each other, as discussed earlier. The reasons to collaborate are expected to be different per kampong, and therefore, split out per kampong. The results can be seen in Table 4. This is supported by the interviews; all interviewees said something related to businesses working together. The purpose of their collaboration is different per neighborhood. Interviewees CL2 and AC2 highlight in Dago Pojok, they work together to improve marketing strategies, to use the prize money one of the community members got granted, and also to choose sides for painting murals. It was also highlighted during the interview with AC2, that in this neighborhood, the collaboration among business focuses mainly on supporting each other's activities. In Binong Jati, collaboration is on fulfilling orders, doing different phases in production, and information (Interview, CL3, 2020). Also, the interviewee CL3 stated it was important that people are going to collaborate on expertise in production and marketing. In Cigadung, the interviewee CL1 insights show businesses collaborate on orders and support each other with lending out equipment and Batik patterns.

Concluding, there are collaborations between businesses, and various resources are exchanged. It is, however, unknown how many and what types of exchanges of resources exist as there are no businesses cited as NWPs in the case study area. The other hypotheses related to the different reasons to collaborate in the different neighborhood is also held, although there are few data to argue this point. In summary, the businesses seem to exchange resources with other businesses that are reported as NWPs. The businesses work together on orders, produce orders together, and so exchange resources such as information and equipment with each other. Businesses are exchanging resources with each other, and the reasons for this differ per neighborhood.

Organizations and businesses often exchange resources between them. To test this hypothesis, data from the questions on support from business/professional membership is used as well as information from the interviews. There are three options to select for answering the question, and the results can be seen in Table 7.

Table 7

How has the business/professional membership supported this business?

Businesses answered question	19
Provided support	Frequency of answer
Specialized training	7
Capital	6
Distribution channels	6
Information	5
Equipment	4
Marketing	4
Business management	3

All things considered, a cautious conclusion is that the businesses exchange resources with organizations. The number of answers out of 166 respondents seems low. Nonetheless, in the interviews, further input on the subject was given. The results are split up in two parts, related to needed support and given support. Interviewees AC1, AC2, CSP1, CSP2, and CL3 highlight that businesses need to have access to capital, good infrastructure, equipment, and coworking spaces. It is also stated that businesses need access to knowledge in the form of ties with the universities in Bandung, and in the form of courses (Interview, AC1 & AC2 & CSP1 & CL3, 2020). Additionally, insights point also to the idea of businesses wanting to learn about marketing, production processes, e-commerce, and new technologies (Interview, AC2 & CSP1 & CL3, 2020). In the interviews is mentioned that in Binong Jati, the businesses specifically need help with designing the new infrastructure to propose a plan to the government (Interview, CL3, 2020). The informant also states that KIRBI prefers support in the form of equipment over money as this overcomes the sensitivity of handling money and is more needed. As in the words of interviewee CL2 (2020), 'Or maybe equipment as well. It's more pressing than money. If you talk about money, everybody wants that, but it's sensitive.' Interviewee AC2 (2020) mentions the responsibility for the creative sector development both the local and national government. Interviewees mentioned the government could help more with providing conferences, social networks (abroad), expert speakers, tax breaks, grants (Interview, CSP1 & AC2, 2020).

In Bandung, various universities have community empowerment programs in which they help communities (Interview, AC1, 2020). There are various courses taught for interested businesses on marketing, business development, and technology (Interview, CSP2 & AC2 & CL3, 2020). The government provides subsidies, training programs, workspaces, and activities (Interview, CSP2,

2020). The training programs are provided by the department of labor and the department of cooperatives and small and medium-sized enterprises (Interview, CSP2, 2020). The latter also helps businesses with accessing capital (Interview, CSP2, 2020). BCCF provides expertise and people to help, a platform for urban games, an incubation program, and space to hold meetings, sell goods, access to ICCN, and have a drink (Interview, AC2 & CSP1, 2020). Community organizations exchange resources with each other; for example, a sales booth in exchange for visiting the festival (Interview, CSP1, 2020).

In Binong Jati, there is support from an NGO, and they also receive equipment and courses from universities (CL3, 2020). In Cigadung, they received equipment and training (Interview, CL1, 2020). The government (this case Keluharan) helps by buying products and taking the business owners to small and medium-sized business exhibitions (Interview, CL1, 2020). In Dago Pojok, Komunitas Taboo made some art studios (Interview, CL2, 2020). The government finances projects and collaborates on projects (Interview, CL2, 2020). All in all, there seem to be plenty of resources exchanged between organizations and businesses.

Businesses exchange knowledge often with (different types of) different knowledge bases, internally and externally, to the cluster. Additionally, it is expected from the insights from Bathelt et al. (2004), that businesses share expertise with other businesses in their neighborhood. Data is used from the question about reasons to collaborate also used in Section 5.1, and the location of these collaborators, as this question asks about exchanged resources. For the different knowledge bases part of the assumption, no data is found in the INECIS survey; therefore, additional information on the exchange of knowledge is collected in the interviews. In the interviews, it came forward that businesses have relations with each other for knowledge but also with universities, especially in Binong Jati (Interview, CL3, 2020). They have relations with various universities and have courses to learn soft skills such as language, how to operate apps, and provide hospitality services (Interview, CL3, 2020). They also have spaces and materials to practice the newly learned skills onside (Interview, CL3, 2020). The businesses work together very often to learn about markets, new technologies, or about suppliers (Interview, CL3 & AC2, 2020). AC1 (2020), suggested more collaborations to improve the transfer of knowledge between universities and businesses in the creative sector. In Cigadung, training was given by Batik Komar, a large player in the Batik sector in the area (Interview, CL1, 2020). In Dago Pojok, the knowledge exchange from Komunitas Taboo has been focused on creating awareness and community awareness (Interview, CL2, 2020). Except for comment in Cigadung, there is no information from the survey. This comment is short, 'information assistance' for a collaborator who is located within the kampong. Concluding this section, there is a strong indication that knowledge is an important resource and that there are different types of knowledge bases involved.

5.3 Location domain

For the location domain, differences between clusters in study areas are anticipated in the location of NWPs and in the type of NWPs present. Also, it is expected that there is a relation between the context of the neighborhood and the social networks formed by businesses. This is due to differences in the geographical community in the neighborhoods. Therefore it is expected that different network characteristics will have developed in different neighborhoods (Clare, 2013). This aimed to be evaluated by looking at homophily in the creative sector businesses. Additionally, few claims about the creative sector from literature are explored with data from INECIS and interviews.

Differences in social network characteristics between neighborhoods are expected, explored for differences are the location of NWPs, the type of ties, and the exchange of resources. The differences in the exchange of resources and reasons to collaborate are studied in Section 5.2. For the hypotheses of difference between the study areas, the classified data on the subsector within the creative sector, and the location of the NWP's collected in the questions about NWP's. The results of this analysis are shown in Table 8 divided by the neighborhood the business is in, and the percentage of NWP per location (i.e., the location being classified in within kampong, elsewhere in the city, outside the city, and NWP in multiple other cities. In Table 8, the neighborhood the business is in, and the percentage of the type of NWP is given.

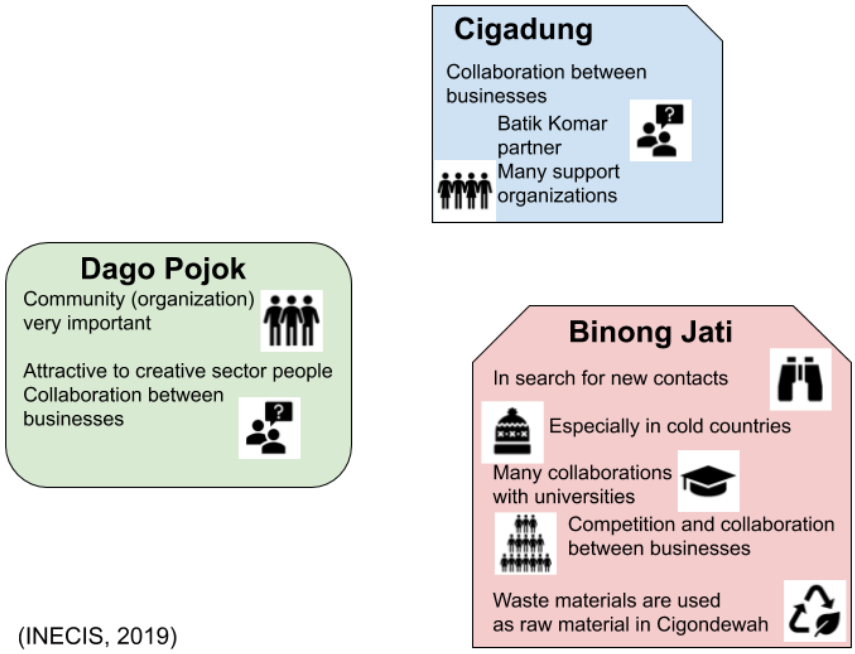


Figure 15 Summary of peculiarities in location domain per neighborhood

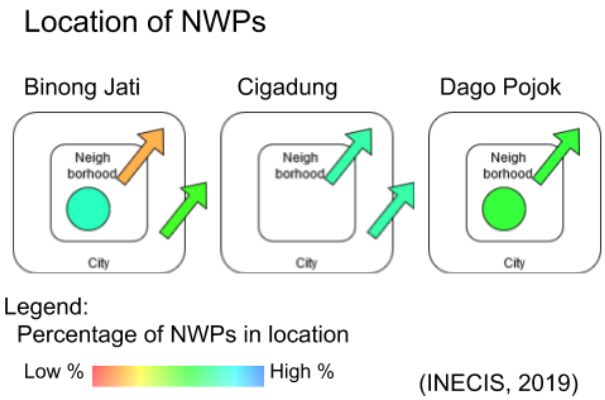


Figure 15 Visualization of the location of NWP's of creative sector businesses

In Figure 16, the locations of the NWPs in the different neighborhoods are studied; there seem to be differences between the neighborhoods. In Figure 15, some other peculiarities specific to the location are given. In Binong Jati, more NWPs are located within the kampong, while in Cigadung and

Dago Pojok, NWPs are located less frequently within the kampong. In Binong Jati, more NWPs, such as suppliers and production partners, are located within the kampong while customers are often located outside the kampong or city. An example of the situation in Binong Jati is that the paint used to die the wool is bought from a supplier within the kampong (Interview, AC1 & AC2 & CL3, 2020). However, multiple interviewees report the need for businesses to have more contacts abroad and outside of Bandung. This is especially important for Binong Jati as knitting products are more suited for colder regions than Indonesia. Also, such externalization of NWPs is also useful for the management and monetarization of the waste of the knitting production process. It is also used since 'the waste gets sent to Cigondewah, it turns into cash. Sent to East Java, as material for prayer carpets.' (Interview, CL3, 2020).

Meanwhile, in Cigadung, the NWPs from businesses are most frequently located elsewhere in the city, most likely because their suppliers and customers are located in other parts of the city, as are the support organizations (Interview, CL1 & CSP2, 2020. Besides NWPs elsewhere in the city, there are also NWPs within the kampong located, such as a major supplier of knowledge, Batik Komar (Interview, CSP2, CL1, 2020). In Dago Pojok, NWPs are located elsewhere in the city or within the kampong as well. Furthermore, in this kampong, various intangible products are made and, therefore, the performances and dances are given elsewhere in the city due to the need to travel to performances or because they are famous locally (Interview, CL2, 2020). In Dago Pojok, artists flock together as well because of the local fame of the area. An example is mural artist Rio (Interview, CL2, 2020). NWPs from businesses in Dago Pojok are least frequently located outside of the city, possibly due to the type of products made and services offered; Dago Pojok also has a large share of locations of NWPs unknown, which could be due to NWPs being for example performers.

Table 8
Type of NWPs per neighborhood

*Neighborhood in which the business is located * Type of network partner Crosstabulation*

% within Neighborhood in which the business is located

		Type of network partner (N = 693)					
		Organization	Supplier	Customer	Business association	Community Organization	Total
Neighborhood in which the business is located	Binong Jati	2.7%	45.9%	45.4%	3.5%	2.5%	100.0%
	Cigadung	13.5%	31.5%	39.3%	14.6%	1.1%	100.0%
	Dago Pojok	15.0%	27.5%	32.5%	5.0%	20.0%	100.0%
Total		4.8%	43.0%	43.9%	5.1%	3.3%	100.0%

It can be seen in Table 8 that in Binong Jati, few organizations, such as professional, business, or community organizations, are reported by surveyees in comparison with Cigadung and Dago Pojok. In the interviews, the impression was different. For Binong Jati, the interviewees reported various ties with universities and with the government (CL3, 2020). CL3 (2020) emphasized it as such: 'we receive training from Dept. Of MSMEs, Industry, from the City.. Province.. even the Ministry.. The campuses are the nearby campuses, ITB as well... ITB did some training also.' The businesses in Binong Jati mainly report suppliers and customers (together suppliers and customers make up 90% of

reported NWPs), which is logical considering their product type, i.e., a physical product with a fully developed production system. The customers reported in Binong Jati are mainly “Toko" and “Toko grossir" (meaning shops and wholesalers), and the suppliers are mainly from within the kampong. Businesses in Cigadung and Dago Pojok report fewer suppliers and customers. In the case of Cigadung, the reason behind this could be related to the fact that the Batik Kampung just started, and several organizations are actively supporting it (Interview, CL1, 2020). In Dago Pojok, one potential explanation was provided by interviewee AC2, who stated that this community tends to have more intangible products and is dependent on the support from the community organization for sales and planning of events (Interview, AC2, 2020).

The business association in Binong Jati is KIRBI; this is the cooperative for the businesses in Binong Jati, it is therefore surprising that not more businesses report them as NWP. In Dago Pojok, community organizations are frequently mentioned (constitute 20% of the total number of NWPs or count of eight out of thirteen interviewees). Although there are few businesses in the survey from Dago Pojok, all businesses considered to be in the creative sector have been surveyed. Therefore the community organization is playing an important role within the creative sector. Interviewee CL2 mentioned the impact the programs had on the community and the role the organization played in this development, for example, by establishing a school and offering training courses to the community. Six out of eight community organizations reported in surveys by businesses in Dago Pojok is Creative Kampong Dago Pojok. This organization is an important NWP in the area, in line with observations from Adiati (2016) and Kustiwan et al. (2015).

Table 9
Location of NWPs per product group in the creative sector

*Product group * Location of network partner classified Crosstabulation*

			Location of network partner classified					
			N = 667					
			Within the kampong	Elsewhere in the city	Outside the city	It doesn’t apply	Multi-city	Total
Product group	Fashion	Count	254	119	176	22	1	572
		% within Product group	44.4%	20.8%	30.8%	3.8%	0.2%	100.0%
	Crafts	Count	19	12	12	16	0	59
		% within Product group	32.2%	20.3%	20.3%	27.1%	0.0%	100.0%
	Film	Count	0	2	3	1	1	7
		% within Product group	0.0%	28.6%	42.9%	14.3%	14.3%	100.0%
	Performing arts	Count	3	4	3	10	1	21
		% within Product group	14.3%	19.0%	14.3%	47.6%	4.8%	100.0%
	Souvenirs	Count	0	1	0	1	0	2
		% within Product group	0.0%	50.0%	0.0%	50.0%	0.0%	100.0%
	Advertising	Count	0	3	2	1	0	6
		% within Product group	0.0%	50.0%	33.3%	16.7%	0.0%	100.0%
Total		Count	276	141	196	51	3	667
		% within Product group	41.4%	21.1%	29.4%	7.6%	0.4%	100.0%

In Table 9, the product group and the location of its NWPs are shown. The fashion industry is almost completely coinciding with the neighborhood Binong Jati; therefore, there is no further discussion for this aspect, and results can be found previously. The crafts product group present in Cigadung and Dago Pojok has most NWPs within the kampong, and also many are located elsewhere in the city and outside the city. A factor that might influence this is the fact that it is a tangible product that can be shipped easily. The performing arts product/service group represented in Cigadung and Dago Pojok also has a relatively large number of NWPs, the most of them are located within the kampong, almost as many cases are elsewhere in the city and outside of the city. In this product group, there is also an NWP located in multiple cities. The other product groups, souvenirs, and advertising have very few NWPs reported, and so no conclusions can be drawn.

The relation between the (historical) context of the study areas and the current social network characteristics are expected to have a relation; this analysis could, however, not be done. The (historical) context is expected to be a major influence on the social networks formed within the area. The data used for this section is the data collected in Section 4.2 about the context of the study area. Usage of the data could be done in combination with the concept of homophily, as noted by (McPherson et al., 2001). This means similar grouping surveyees with similar (personal and network) characteristics. In this case, the characteristic for grouping would be location, neighborhoods, and the relation of the neighborhood's characteristics with the social networks in the neighborhood. The characteristics influencing social networks collected as seen in Section 3.4.2 are location (coordinates + neighborhood), product (+ classified in product group), main sources of finance, number of employees, age group, gender, educational level, migration background (+ origin), time lived in the kampong. However, the data is rich with various characteristics of businesses and their owner or manager, and these characteristics are influencing social networks at various aspects, such as the number of ties, diversity of ties, and exchange of resources in ties. Additionally, the influence these characteristics have on social network characteristics is not clear. Therefore, this type of analysis is deemed too complicated and is not performed as it might fall outside the scope of the current thesis based on the effort that it might require for its analysis. Concluding this paragraph, there are various interesting characteristics collected that very likely have an influence on the formation of social networks, but the analysis of this influence is impossible.

On the contrary to the previous paragraph, there are some clear indications of the influence of certain characteristics of ties on social networks, as extracted from Adiati (2016), Herdiana (2016), Kustiwan et al. (2015), Purnamasari (2017). Three of these indicated relations have been identified:

Firstly, businesses in Binong Jati are family businesses, according to Purnamasari (2017), and therefore are expected to employ family members more often than in Cigadung and Dago Pojok. The data from the question on the relation with the majority of employees, as discussed in Section 5.2, is used. The results can be found in Table 10.

Table 10

The relation between the business owner or manager with the majority of employees, per neighborhood

*Type of relationship between business owner/manager and the majority of employees * Neighborhood in which the business is located Crosstabulation*

% within Neighborhood in which the business is located

		Neighborhood in which the business is located N = 166			
		Binong Jati	Cigadung	Dago Pojok	Total
Type of relationship between business owner/manager and the majority of employees	Friends or neighbors	28.6%	50.0%	15.4%	30.1%
	It doesn't apply	0.8%	10.0%	53.8%	6.0%
	Members of groups or associations you belong to.	0.8%	20.0%		3.0%
	Members of your family or extended family	16.5%		23.1%	15.1%
	None of the above	28.6%	20.0%	7.7%	25.9%
	People that worked before for your competitors	24.8%			19.9%
Total		100.0%	100.0%	100.0%	100.0%

From Table 10, it can be seen that the businesses in Binong Jati do proportionally employ more family members than in Cigadung and Dago Pojok. Taking into account the category 'It doesn't apply,' this difference does not hold up in comparison with Dago Pojok. Additionally, there are proportionally way more entries into the other categories. Therefore, this assumption does not hold up and should not be considered as an observed phenomenon. This could, however, also be down to the size of businesses, as was seen in Section 5.2.

Secondly, there are three famous/legacy businesses in Cigadung; these are mentioned by Herdiana (2016) and are expected to be sources of knowledge for other businesses. The businesses in Cigadung mentioned as important businesses are not seen back as NWP's in any of the surveys. Also, there is no reference to one of them being a source of knowledge. However, in the interviews, Batik Komar turned out to be a help in the development of the region. Batik Komar organized training activities for the businesses involved and spread knowledge.

Thirdly, in Dago Pojok, there is a school formed as part of the Kampong Kreatif project. This is expected to be a source of knowledge in Dago Pojok (Kustiwan et al., 2015). The school mentioned in Kustiwan et al. (2015) in Dago Pojok, is not found as an NWP. However, in the interviews, the school turned out to be a major part of the development of the neighborhood as a creative area. Children and adults were able to get high school degrees and were able to learn and instil creative values. Another observation, the NGO Komunitas Taboo, is still very important in the neighborhood and functions as a point of entry into the community. And the government focusses the support for the creative sector according to the creative potential of the neighborhood. Concluding the context part of the results and discussion, the results are in line with the expectations additionally the

government is basing their support on the potential, and Komunitas Taboo has a very important role in the neighborhood.

Chapter 6 Conclusions, recommendations and future research

6.1 Conclusions

The aim of this work is to analyze the role of social networks in the development of businesses in the creative sector in Bandung. The role of social networks is important for starting, maintaining, and accessing support for businesses in the creative sector. It is important to study this in the context of Indonesia as here the creative sector is understudied and needs more academic attention. This research aims to study the role of social networks by analyzing the characteristics of social networks, namely ties, exchange of resources, and location in the creative sector businesses in Bandung, Indonesia. The research is conducted following a methodology adapted from SNA. In order to achieve this aim, this aim or objective is split into three sub-objectives, which are answered through research questions.

The first sub-objective is to discuss and define characteristics of social networks, which are important for this specific creative sector, such as *ties, exchange of resources, and location*. From literature, it is found that *ties* have a strength depending on various factors; this strength is influenced by the type of tie, frequency of contact, and personal preference. By having ties, businesses can overcome missing support from institutions. The ties with family and extended family are important to access as employees, support, and source of capital. Other important ties are ties with organizations such as NGOs and the government; they provide expertise, capital, and information. Businesses to business relations are important to provide knowledge, capital, and these ties are important as customers and suppliers. Another finding is the important role of the community in the businesses in the creative sector, especially in the case of Indonesia. Also, there is a significant impact of personal characteristics on the ties one engages in, in social networks. Many ties are formed via activities, schools, and network organizations, which supports collaborations between businesses.

The exchange of resources is a reason to maintain ties. Exchanged resources are both tangible and intangible and are amongst other goods, capital, knowledge, and labor. Knowledge is especially important as it is a means to stay up to date on developments and new products. The exchange of resources supports the establishment and functioning of businesses. *The location* is very important as the creative sector is often geographically clustered, enabling communication and collaboration between businesses. Also, their employees benefit from this. Additionally, social networks are embedded in the geographic community and have geographic elements. The existence of internal and external ties influence the ability to get new information. Another important element is the ties with different knowledge bases such as universities and similar businesses.

The second sub-objective is to *identify* and *visualize* the social networks of businesses in the creative sector in Bandung and their characteristics, such as ties, location, and resources exchanged. *Identified* characteristics of the social networks meaningful to the social networks in the creative sector are with respect to 1) ties, the type of NWP(customer, supplier, (type of) organization, type of relation with employees (family or extended family, friends or neighbors, etc.), type of agreement with employees); 2) exchange of resources, the reasons to collaborate, and what is exchanged with organizations; 3) location, the (dis)advantages of the neighborhood, the location of the NWPs, and the location of the collaborators were used as proxy conditions. Besides, the ties, exchange of resources, and location characteristics of businesses and business owners influence social network formation. Identified, of the businesses, are business name, location, product, sources of finance, and the number of employees. For the business owner or manager, age group, gender, educational level, migration background, and the time lived in the kampong. *Visualized* are the characteristics of infographics, maps, tables, and charts. These tools were used as visualizations of a limited set of

some characteristics in the data and analysis; the visualizations made data interpretation easier for readers of this work. More visualizations would have been helpful, but due to constraints in time and data, this was out of reach.

The third sub-objective is to analyze and discuss patterns in the characteristics of social networks of businesses in the creative sector in Bandung. The focus of this analysis and discussion is on *deriving* patterns and *explaining* these patterns; as the studied neighborhoods have common characteristics, these will be discussed together, and the neighborhoods also are different parts of the conclusion will be divided into the three neighborhoods.

Interviewees mention that businesses in the creative sector in Bandung have a need for capital; the access to formal banks and investors is restricted due to informality. They also indicated that businesses work together with businesses, universities, and organizations, and exchange resources such as knowledge, capital and equipment in line with Bathelt et al. (2004), Eijdenberg et al. (2019), and Gregory (2016) and this is also supported by findings from the data ("INECIS," n.d. Interview, AC1 & AC2, CL1 & CL2 & CL3, 2020). Exchange of knowledge between businesses, among businesses with universities and with the government, was defined as relevant based on the insights gained from the interviews with AC1, AC2, CSP1, and CL3, in line with the literature study. However, there are no references to the exchange of knowledge between businesses within the same sector found in data from the INECIS survey. From the analyzed data and interviews, it is found that the community plays an important role in the creative sector through the community leader, who leads the projects and can make a project a success or failure. The importance of the community is in line with observations from Adiati (2016); the role of the community it to provide support in organizing activities, and starting new projects. In the data and interviews, the important role of family for businesses in the creative sector is confirmed. Based on the data and the interviews, the family helps with labor and provide access to capital, in line with Eijdenberg et al. (2019).

In Binong the main finding on *ties* a common collaboration method in Binong is makloon, the subdivision of orders amongst the different producers in the neighborhood. This, as the producers are small and cannot fulfill orders on their own. There are various ties with universities and the government to have access to developments in technology, tourism, and hospitality services. Also, businesses need to work together to innovate and change production to withstand competition from outside (Indonesia). On *location,* the main findings are the customers are located elsewhere in the city and outside of the city as the demand for knitting ware in Binong is small. The suppliers are located within the kampong due to the high concentration of knitting producers.

In Cigadung, the main findings on *ties* social networks are influenced by the recent establishment of the Batik Kampung; therefore, various ties with support organizations within Bandung are present. Additionally, there are Creative Belt businesses that have more employees and are more established businesses. These businesses got in touch via the Creative Belt project and are (starting to) collaborating on creating tourism packages. Government involvement in this neighborhood is pronounced, as they are the initiator of the projects. Few ties within the kampong are present as the project is relatively new. On *exchange of resources*, the businesses within the Batik Kampung often collaborate on projects and lend each other patterns and other equipment. The government is involved in the Batik Kampung with sales, support, and supplied equipment. On *location,* it is found that there are NWPs for the surveyed businesses outside the city, mainly for selling produce. Additionally, an important actor is a local business Batik Komar established in 1977, the involvement of business with legacy is in line with Bathelt, Malmberg, & Maskell (2004).

For the *Dago Pojok* area on the *ties* with the (community) organization, Komunitas Taboo is a large factor in the success of the project, and the organizations are still strongly involved. The project is currently inactive due to ineffective management. This is explained by the importance of the community (organization) in Indonesian society (Adiati, 2016). On *exchange of resources*, businesses collaborate on marketing, customers, and providing services to customers. This is explained by the variety of activities provided by the businesses. There are positive effects on the community, and they are still carrying the project forward. Very likely because of the community focus of the project. *Location*, the social networks in the Dago neighborhood, are more focused on the city of Bandung and the kampung it is located in due to the intangible nature of the products produced.

Relating back to the main objective of the thesis, to characterize social networks of businesses in the creative sector, based on their *ties*, *exchange of resources*, and l*ocation* in the creative sector businesses in Bandung, Indonesia. This objective is achieved and has shown to provide valuable new insights into the creative sector in Bandung, Indonesia. The findings can be used to prioritize new policies and can add to the growing academic discussion on the creative sector in the Global South.

6.2 Limitations

The limitations of this study are related to the data and analysis methods. The data used is collected to create a general overview of the creative sector in the three neighborhoods in the study area. As the data is collected to create a general picture, the SNA performed was quite limited in its findings. For future research, it is recommended to focus on one theme and design the data collection around the theme. Another limitation of the data was the low response rate for some questions; for example, the question on business associations, there were 19 replies out of 166 businesses interviewed. Interviewee CL3 mentioned that the business association in Binong Jati was actively involved, and therefore, I would expect more answers naming KIRBI. The neighborhood of Binong Jati was with 133 out of 166 surveys over-represented; therefore, with aggregating data, some of the results are the results for the neighborhood Binong Jati. Additionally, a survey rate of 1/3 in Binong Jati, the response rate is low. Therefore the data is possibly skewed to the people who participated in the survey. Also, is the total number of participants low in comparison with other SNA studies; therefore, it is recommended to include more subjects or a wider study area in future SNA works (Wasserman et al., 2005).

Furthermore, the interviews for triangulation were conducted over a short period, and thereafter the results were analyzed and published soon. This made the time available for follow up questions too short (3 weeks), it is recommended to leave more time for follow up interviews in future works.

An additional limitation of this study is the analysis method; it was not possible to study the concept of homophily as studied by McPherson et al. (2001) in the businesses in the creative sector. If, in future studies, the focus on extracting patterns and clusters from the business and business owner or manager information is focused on interesting findings might come forward. Literature, amongst others, Granovetter (1973), discusses the relationship between social networks and strong and weak ties. However, this subject is unexplored and could yield interesting results. The concept kampong is frequently used in this study; however, to the interviewees, the researcher, and the supervisors of this work it is not crystal clear what the concept entails. Therefore, the term neighborhood is used as well. SNA is a broad toolbox to study social networks, from this toolbox only the frequency of several features in the social network is studied.

6.3 Recommendations

Recommendations are split into two separate paragraphs, one for using the research in policymaking and one for future academic work. For policymakers, it is recommended to focus efforts on knowledge sharing and collaboration between businesses themselves and businesses with organizations in the creative sector. This, like knowledge sharing, was one of the most important reasons for businesses to have ties, as told by the interviewees. Also, it is recommended to adjust the creative sector policies to the local situation. This, as there was found a lot of differences between the neighborhoods in the study areas. Important for starting projects is to start them sustainably, for example, community engagement and focus on more than the community leader. If the community leader stops, the project stops as well; therefore, the current method of setting up projects might lead to wasted efforts. The case of Dago Pojok shows that community inclusion is a possible way to foster long term adaptation of the project in the community. One final recommendation is to make access to capital easy; it was a common complaint in both the data, literature, and interviews that this was very difficult for businesses in the creative sector.

For future research, it is recommended to focus on the role of informality in the kampongs. It was indicated in multiple interviews and literature to be an important aspect. Creativity should be considered wider than the western or Indonesian government view; it is also a means to create a sustainable living for people (Interview, AC2, CL2, CSP1, 2020). In interviews, it was mentioned that creativity is also found in entrepreneurship, doing business informally, and arts and crafts (Interview, AC2, CL2 & CL3, 2020). Also recommended for future research in the social networks in the creative sector is to use more tools from the SNA toolbox, now only frequencies in all forms are used.

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Appendix A Survey questions + attributes

Questions posed in survey

Empty collumns skipped

1. Name of the business

2. Business location

_2. Business location_latitude

_2. Business location_longitude

_2. Business location_precision

3. Business neighborhood

Business Rukun Warga

Business Rukun Tetangga

4. Current use of the land where the business is located (choose all relevant options)

5. Age of business (co-)owner/manager

6. Gender of business' (co-)owner/manager

7. Level of education of business' (co-)owner/manager

8. Before living in this kampung, did you live somewhere else?

8a. Specify where?

8b. Why did you move to this kampung?

9. For how long have you been in this kampung?

10. What is this business' main product/service?

11. In what year was this business started?

12. Why was this business started?

12a. Specify others

13. What was the main reason why this business was started in this place? It was…..

13a. Specify others

14. Currently, what are the three main advantages of this location? (only select three)

14a. Specify others

15. Currently, what are the three main disadvantages of this location? (only select three)

15a. Specify others

16. How many employees did this business have when it started?

17. How many employees are now?

18. Has this business increased, decreased, or stayed the same in terms of sales since its first year?

18a. When was the biggest change in the number of sales? (year)

19. What sources of finance have been used for this business since it started? (choose all relevant options)

20. Are social media or messaging services used to support this business?

20a. Please specify for what kind of purposes do you use social media or messaging services? (choose all relevant options)

Specify others

21. The current employees of this business are in their majority…

22. Where do the majority of your employees live?

22a. Please specify where? (name of region, area, and neighborhood).

23. What type of employment agreement exists between this business and its employees?

23a. Specify which others?

24, Has this business collaborated with other businesses in the last three years?

24a. Where do the majority of your collaborators live?

Please specify where? (name of region, area, or neighborhood).

24b. What has been the purpose of the collaboration?

25. Please describe this business's three main suppliers.

Name of main supplier/provider 1

25a. Address of main supplier/provider 1 (specify name of kampung or city if outside of Bandung)

25b. What type of agreement exists between this business and this supplier/provider?

Specify which other?

26. Name of main supplier/provider 2

26a. Address of supplier/provider 2 (specify name of kampung or city if outside of Bandung)

26b. What type of agreement exists between this business and this supplier/provider?

Specify which other?

27. Name of main supplier/provider 3

27a. Address of supplier/provider 3 (specify name of kampung or city if outside of Bandung)

27b. What type of agreement exists between this business and this supplier/provider?

Specify which other?

28. Please describe this business' three main customers. (ex: individual customers, small stores, retail stores, tourist, government institutions)

Type and Name of customer 1

28a. Address of customer 1 (specify name of kampung or city if outside of Bandung)

29. Please describe this business' three main customers. (ex: individual customers, small stores, retail stores, tourist, government institutions)

Type and Name of customer 2

29a. Address of customer 2 (specify name of kampung or city if outside of Bandung)

30. Please describe this business' three main customers. (ex: individual customers, small stores, retail stores, tourist, government institutions)

Type and Name of customer 3

30a. Address of customer 3 (specify name of kampung or city if outside of Bandung)

31. Is this business a member of any business/professional association/organization? (ex: international Batik association, chamber of commerce, national/local association of sewing entrepreneurs)

31a. Name of business/professional association/organization 1

31b. Address of business/professional association/organization 1 (specify name of kampung or city if outside of Bandung)

31c. Duration of involvement with business/professional association/organization 1

31d. Has this business/professional membership supported this business in any form?

31e. How the business/professional membership has supported this business? (choose three main options)

31a. Name of business/professional association/organization 2

31b. Address of business/professional association/organization 2 (specify name of kampung or city if outside of Bandung)

31c. Duration of involvement with business/professional association/organization 2

31d. Has this business/professional membership supported this business in any form?

31e. How the business/professional membership has supported this business? (choose three main options)

31a. Name of business/professional association/organization 3

31b. Address of business/professional association/organization 3 (specify name of kampung or city if outside of Bandung)

31c. Duration of involvement with business/professional association/organization 3

31d. Has this business/professional membership supported this business in any form?

31e. How the business/professional membership has supported this business? (choose three main options)

32. Is this business a member of any community associations/organizations/development in the neighborhood? (ex:

32a. Name of community association/organization 1

32b. Address of communit association/organization 1 (specify name of kampung or city if outside of Bandung)

32c. Duration of involvement with community association/organization 1.

32d. Has this community association/organization membership supported this business in any form?

32e. How the community association/organization membership has supported this business? (choose three main options)

Specify which other?

32a. Name of community association/organization 2

32b. Address of communit association/organization 2 (specify name of kampung or city if outside of Bandung)

32c. Duration of involvement with community association/organization 2.

32d. Has this community association/organization membership supported this business in any form?

32e. How the community association/organization membership has supported this business? (choose three main options)

Specify which other?

32a. Name of community association/organization 3

32b. Address of communit association/organization 3 (specify name of kampung or city if outside of Bandung)

32c. Duration of involvement with community association/organization 3.

32d. Has this community association/organization membership supported this business in any form?

32e. How the community association/organization membership has supported this business? (choose three main options)

Specify which other?

33. From which type of institutions has this business got assistance since it started? (choose all relevant options)

33a. Specify which others?

33b. Type of assistance received by these institutions. (choose all relevant options)

Specify which others?

33c. Length of assistance

34. What type of support does this business needs in the future?

34a. Specify which others?

35. Have you done before the process for getting one of the following registrations for this business? (PT, Koperasi, CV, UB, UD, SIUP, SIUMK, TDUP, Lain-lain)

35a. Which type of registration have you done?

Specify which others?

35b. When did you start the process of acquiring these registration/licenses (write year in numbers)?

35c. Are you intending to follow in the future any of these registration procedures/license acquisition?

36. Have you followed any official procedures to certify the quality of this business' product/service? (Any type of certification is valid)

36a. Which certification you have acquired? (Any type of certification is valid)

36b. When did you start the process of acquiring these registration/licenses (write year in numbers)?

36c. What advantages has this business from having followed such procedures/having such licenses?

36d. What are your reasons for not having follow any of these registration procedures/ acquired these licenses? (choose all relevant options)

Specify which others?

37. Do you know any policy or program by the government relevant to your business?

Specify which one?

38. Do you consider the current government policies reflect the conditions and consider the needs of your business and of the kampung?

38a. How?

38b. Why?

39. For surveyors only_ if marked in any moment the option It doesn't apply, please try to explain why they person surveyed did not answer the question (ex: Person not comfortable with the question).

Attributes available in the survey

1	BusinessORRelation_ID	Numeric	8	0	BRID	None	None	8	Right	Unknown
2	Business_name	String	8	0	1 Name of business	None	None	8	Left	Nominal
3	Business_location_x	Numeric	8	0	2 Location latitude	None	None	8	Right	Unknown
4	Business_location_y	Numeric	8	0	2 Location longiture	None	None	8	Right	Unknown
5	Business_neighborhood	String	8	0	3 Business neighboorhood and address	None	None	8	Left	Nominal
6	Business_land_use	Numeric	8	0	4 Landuse of land where business is located	None	None	8	Right	Unknown
7	B_owner_manager_age_group	Numeric	8	0	5 Agegroup of business owner/manager	None	None	8	Right	Unknown
8	B_owner_manager_gender	Numeric	8	0	6 Gender of business owner/manager	None	None	8	Right	Unknown
9	B_owner_manager_education	Numeric	8	0	7 Level of education of business owner/manager	None	None	8	Right	Unknown
10	B_owner_manager_migration	Numeric	8	0	8 Migration background of business owner/manager	None	None	8	Right	Unknown
11	B_owner_manager_origin	String	8	0	8a Origin of business owner/manager if 8 = yes	None	None	8	Left	Nominal
12	B_owner_manager_moving	Numeric	8	2	8b Reason for moving to this kampong	None	None	8	Right	Unknown
13	B_owner_manager_time_in_kam...	Numeric	8	0	9 Time business owner lives in the kampong	None	None	8	Right	Unknown
14	Business_product	String	8	0	10 Product or service provided by business	None	None	8	Left	Nominal
15	Business_start	Numeric	8	0	11 Year business was started	None	None	8	Right	Unknown
16	Business_start_reasons	Numeric	8	0	12 Reason for starting this business	None	None	8	Right	Unknown
17	Business_start_place	Numeric	8	2	13 Main reason for choosing this location	None	None	8	Right	Unknown
18	Business_location_advantages	String	8	0	14 3 main advantages of the location of your business	None	None	8	Left	Nominal
19	Business_location_disadvantage	String	8	0	15 3 main disadvantages of the location of your business	None	None	8	Left	Nominal
20	B_employees_start	Numeric	8	0	16 Number of employees at the start	None	None	8	Right	Unknown
21	B_employees_currently	Numeric	8	0	17 Number of employees currently	None	None	8	Right	Unknown
22	Business_growth	Numeric	8	0	18 Growth of business	None	None	8	Right	Unknown
23	Business_growth_year	Numeric	8	0	18a Year of most growth of sales in business	None	None	8	Right	Unknown
24	Business_finance	String	8	0	19 Sources of finance used from the start	None	None	8	Left	Nominal
25	Business_marketing_social	Numeric	8	2	20 Usage social media	None	None	8	Right	Unknown
26	Business_social_reasons	String	8	0	20a Reasons for using social media	None	None	8	Left	Nominal
27	B_employee_type_majority	Numeric	8	0	21 Type of tie majority of employees	None	None	8	Right	Unknown
28	B_employee_location_majority	Numeric	8	0	22 Location where majority of employees lives	None	None	8	Right	Unknown

29	B_employee_relation	Numeric	8	0	23 Agreement between employee and business	None	None	8	Right	Unknown	
30	B_colloboration	Numeric	8	0	24 Business colloborations yes/no	None	None	8	Right	Unknown	
31	B_colloboration_location	Numeric	8	2	24a Location business colloborators	None	None	8	Right	Unknown	
32	B_colloboration_exchange	String	8	0	24b Purpose of colloborations	None	None	8	Left	Nominal	
33	Relation_of_business	String	8	0	25 Name of network partner	None	None	8	Left	Nominal	
34	Relation_exchange	Numeric	8	0	25_1 purpose of network partner (supplier, end customer, business organization, community)	None	None	8	Right	Unknown	
35	Relation_location	String	8	0	25a Address of network partner	None	None	8	Left	Nominal	
36	Relation_type_of_agreement	Numeric	8	0	25b Agreement between network partner and business	None	None	8	Right	Unknown	
37	Relation_duration_involvement	Numeric	8	0	31c Duration of involvement with business	None	None	8	Right	Unknown	
38	Relation_useful_connection	Numeric	8	0	31d Support yes/no	None	None	8	Right	Unknown	
39	Relation_exchange_organization	String	8	0	31e Type of support	None	None	8	Left	Nominal	
40	Relation_institution_type	Numeric	8	0	33 Type of institutions which supported business	None	None	8	Right	Unknown	
41	Business_future_needs	String	8	0	34 Support needed in the futute	None	None	8	Left	Nominal	
42	B_registrations	Numeric	8	0	35 Registrations pursued yes/no	None	None	8	Right	Unknown	
43	B_registrations_specified	String	8	0	35a Specified which registrations are pursued	None	None	8	Left	Nominal	
44	B_registrations_start	Numeric	8	0	35b Start data of registering	None	None	8	Right	Unknown	
45	B_registrations_future	Numeric	8	0	35c Future registrations	None	None	8	Right	Unknown	
46	B_registrations_quality	Numeric	8	0	36 Quality certification yes/no	None	None	8	Right	Unknown	
47	B_registrations_quality_specified	Numeric	8	0	36a Specified which quality certification is pursued	None	None	8	Right	Unknown	
48	B_registrations_quality_start	Numeric	8	0	36b Start of acquiring quality certifications	None	None	8	Right	Unknown	
49	B_registrations_quality_advantages	Numeric	8	0	36c Advantages received from these certifications	None	None	8	Right	Unknown	
50	B_registrations_quality_reasons	Numeric	8	0	36d Reasons for not certifying	None	None	8	Right	Unknown	
51	B_government_program	Numeric	8	0	37 Knowledge about government program yes/no	None	None	8	Right	Unknown	
52	B_government_sufficient	Numeric	8	0	38 Sufficiently adjusted policies yes/no	None	None	8	Right	Unknown	
53	B_government_sufficient_how	String	8	0	38a Explanation how 38	None	None	8	Left	Nominal	
54	B_government_sufficient_why	String	8	0	38b Explanation why 38	None	None	8	Left	Nominal	

Attributes used from the survey

Dimension	Attributes	Question used
Ties	NWP (name + ID)	25
	Collaboration partners	24
	Type of NWP	25_1 (or 26_1, etc.)
	Type of organization	33
	Type of employee (majority)	21
	Type of agreement with employees	23
Exchanges	Exchanged with collaborator	24b
	Exchanged with organization	31e
Location	Location (dis)advantages	14 & 15
	NWP location (+ classified)	25a (or 26a, etc.)
	Location collaborators	24a
Business (owner/manager	Business (name + ID)	1
	Location (coordinates + neighborhood)	3-5
	Product (+ classified)	10
	Main sources of finance	19
	Number of employees	17
	Age group	5
	Gender	6
	Educational level	7
	Migration background (+ origin)	8a
	Time lived in kampong	9

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Form Data Management Plan

This form is intended for the development of a data management plan, based the data management section that formed part of your research proposal. NWO expects you to incorporate any comments received from the referees and/or the committee about the data management section in this data management plan. Please do not use any abbreviations and when referring to any website mention the complete web address.

NWO only requests storage of reusable relevant data. NWO understands 'data' to be both collected, unprocessed data as well as analysed, generated data. Under this, all forms are conceivable; digital and non-digital (for example samples, completed questionnaires, sound recordings, etc.).

For this data management plan, NWO uses a template that matches the guidelines for data management from Horizon 2020. An explanatory note can be found at the end of this document. For help with the completion of the data management plan, please contact the university library and/or ICT Department of your institute or university. If necessary, you can also contact the NWO-domain that awarded your proposal funding.

Your are kindly requested to complete the plan below and submit it to NWO within four months after the awarding of funding. NWO will approve the data management plan as quickly as possible. Plans in which the data will be deposited in a national or international repository will, by definition, be approved. If necessary, NWO will call upon the help of (data) experts from your scientific discipline for the assessment. As soon as the data management plan has been approved by NWO the project can be started. The data management plan can be adjusted during the course of the research.

You should submit the completed form via the online application system ISAAC. The main applicant has to submit his/her data management plan via his/her own ISAAC account. Data management plans not submitted via ISAAC will not be taken into consideration.

1	General information	
1.1	Name applicant and project number	– Prof. Karin Pfeffer, W 07.50.1853

2	Description dataset	
2.1	Describe the data that will be collected/ generated and which you find relevant for reuse.	The project collects/generates different types of data, of qualitative, quantitative and spatial nature. To begin with, we will conduct interviews with policy makers and public officials and/ or other relevant stakeholders involved in the development and implementation of the strategies in Bandung that are targeting the development of creative industries. Interviews with kampong leaders and NGOs active on the field will help to understand the relationship of the kampong with the city, and to develop a survey and

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	contextualize its results. Informed consent forms will be used in the interviews and survey. The interviews will be recorded and transcribed, and coded using software such as Atlas.ti. Audio, transcripts and coding will be stored using the UT server, which is GDPR compliant and ISO certified. Available metadata, describing how the coding was done and how the data was collected, will be made available using DANS-Easy after publication. Primary data collection will also include a survey amongst the informal (creative) industries in the kampong. The survey's metadata will be made available using DANS-Easy. No personal data or personal variables will be made available without prior permission of the researcher (prior, during or after). Secondary data will be used for support of the socio-economic and spatial analysis (namely census database, remote sensing data and GIS data). The required data is publicly available. Processed data will be made available in aggregated form in DANS-Easy after publication and upon request, for example land-uses derived from satellite data.
2.2 Which type and format of data are these?	- Interview data are text format and stored as rich test files (.rtf). - Survey data are processed into tabular format, saved in the format of the data processing software (both Excel, .xlsx; SPSS, .sav). - Earth observation data derived from EU JRC in the form of the Global Human Settlement Layer (GHSL) are digital raster files (extension .img); Google Earth Images (accessed online) will be used as input for visual interpretation; edited, analyzed GIS data are digital file formats suitable for ArcGIS software (vector, shape and image files, extension .shp and .img).
2.3 For which researchers/research groups is it interesting to have these data available?	– The data collected and analyzed for this project is of relevance for research groups and researchers working on spatial, urban and economic issues in the Global South. These are data to analyze effects of policy approaches for local economic development over urbanization, especially in areas dominated by informality.

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3	**Data storage**	
	During the research	
3.1	What is the volume of the data and where will the data be stored?	– The size of all data (collected, processed and analyzed) will be <100 GB.
3.2	Is there currently sufficient storage capacity during the project? Is there currently sufficient backup capacity during the project? Describe how often and where backups of data will be made and who is responsible for this. If no or insufficient storage or backup capacities are available then explain how this will be taken care of.	Yes Yes – The researchers will use the University of Twente's network storage (UT server), which is GDPR compliant and ISO certified. This server is only accessible with their personal UT net-ID. The University's ICT services make daily backups of all files on the server, and it is accessible from any location 24 hours per day, 7 days a week via the UT's password protected laptops. Additionally (restricted) access can be determined for partners.
3.3	Describe which facilities for your data (ICT or another type, such as refrigerators or legal expertise) are already present and which are still needed.	– The appropriate ICT facilities needed for data storage and data processing, both during and after the research, are available at the Faculty of Geo-Information Sciences and Earth Observation (ITC), at the University of Twente.
3.4	What are the expected costs? Please specify these and state an amount that is as realistic as possible. How will these costs be covered?	No extra costs are expected.
	After the research	

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3.5	State in which existing repository the data will be stored and which type this is. If available mention the URL. If the data will not be stored in a repository then state how the data will be made findable, accessible and usable.	– To keep data and research findings available for others for the long-term, we plan to store data on an online data archive (repository): DANS Easy repository. The DANS Easy archive has a straightforward way of depositing data, supports the appropriate file formats of this study (see above), and works with highly convenient persistent identifiers. URL: https://easy.dans.knaw.nl/ui/home DANS Easy is called a trusted repository and this means that it ensures that project data created and used by researchers is "managed, curated, and archived in such a way to preserve the initial investment in collecting them" and that the data "remain useful and meaningful into the future". The data is stored according the GDPR and the FAIR Principles are used. Storing options: ▪ *Open Access* - The dataset is, without any restriction, made available to all EASY-users, both registered and unregistered ▪ *Open Access for Registered Users* - The dataset is only made available to all registered EASY-users. ▪ *Restricted Access* -The dataset is only made available only after receiving express permission from the Depositor; the researcher and ITC need to give permission ▪ *Other access* is a special category only intended for datasets that are stored at DANS or ITC, but not made available via EASY.
3.6	For how long can the data and (if applicable) the associated software be stored at most?	– 10 years
3.7	Describe which facilities for your data and any associated software are already present and which are still needed.	– All the facilities and software are already available.
3.8	What are the expected costs? Please specify these and state an amount that is as realistic as possible. How will the costs be covered?	– No additional expenses are expected.

4 Standards and Metadata

4.1	Will a standard be used for the metadata?	– Yes For this project, metadata is created for each data file in accordance with the most common disciplinary standard

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	If yes, describe in detail which, and state in which databases these will be included. If no, state in detail which metadata will be made to make the data easy/easier to trace and make available for reuse. Mention the data-base in which these metadata will be included.	ISO-19115 (https://www.iso.org/obp/ui/#iso:std:iso:19115:-1:ed-1:v1:en). The DANS Easy document "DANSpreferredformatsUK.pdf" describes the accepted format of the data files. The formats of data files are very important so that DANS Easy could offer the long term guarantees in terms of usability, accessibility, and sustainability.

5	**Making data available**	
5.1	Are the data, or a part of these, available for reuse after the Open Access project? If so, please describe in a concrete manner when and how the data will be made available. If not, please explain why the data are not suitable and/or available for reuse.	Yes, collected and processed data derived from the project will be made available pending different levels of access: – Restricted access - interviews and survey results on an aggregated level and anonymized will be made available after acceptance of publication, and upon request to the researchers. – Open access – publications and open access data
5.2	If data are only made available after a certain period then please state the reason for this. If part of the data cannot be made (directly) available then please state the part concerned.	– see above
5.3	Are there any conditions for the reuse of the data? If so, are these conditions defined in a consortium agreement?	- Yes, the re-use of data must always be done in close cooperation with the consent of the data providers and acknowledging the source. - No. To be defined with the partners.

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Explanatory note for this form

Sometimes it is simpler and cheaper to regenerate exactly the same data than to store the existing data. In some cases, regenerating data will be less privacy-sensitive than storing it. These can be acceptable reasons for not archiving this type of data for the long-term. The RDNL checklist provides a guideline for selecting the data that can be eligible for archiving.

1 General information

Fill in the name of the project leader and the project number allocated by NWO.

2 Description dataset

2.1 Describe the data and documents that will be archived after the research and will be made available for reuse. State whether these data lie at the basis of publications. Which documentation will be archived that is important for making reuse of the data possible, such as methodology (codebooks, metadata) or persons involved (study subjects, researchers)?

2.2 Which type and format data will be stored? NWO understands 'data' to be both collected, unprocessed data as well as analysed, generated data. This can be in all (combinations of) conceivable formats; digital and non-digital (for example samples, completed questionnaires, sound recordings, etc.).

3 Data storage

During the research

3.1 Make a realistic estimation of the final volume of the data that will be archived and the necessary storage capacity and state where you plan to store the data during the research. In the case of digital data, NWO prefers data to be stored during the research in the central storage centre of your institution, for example the ICT department and/or the university library.

3.2 It is important that there is storage capacity, and in the case of digital data, also a backup of your data. An automatic backup by the ICT Department is safer than a manual backup. Storage of data on laptops, hard disks or external media is in general risky and will therefore, in principle, not be accepted by NWO. If external services are used then you must ensure that no conflicts of interest arise with the policy of research partners or co-financiers and with the policy of your department or institute, for example about the security of sensitive data. Take into account the security of data; these can be physical measures (for example, a burglar alarm and a safe for the storage of data) or logical access checks (such as passwords, pin codes, passes and biometric characteristics).

3.3 Describe which facilities are already present for your data and which are still needed. In the case of ICT, think about data storage capacity, bandwidth for data transport and calculation power for data processing. The ICT department, the university library or research support service at your institution can help you to draw up this description.

3.4 Make a realistic estimation of the costs that will be made and state an amount that is as realistic as possible. Important factors that determine the costs are:

a. the type of data;
b. the capacity needed for storage and backup;
c. the amount of manual work for allocating metadata and drawing up other documentation such as code books and queries used in the statistical package;
d. the extent to which the data needs to be made secure;
e. the hiring of external data management and other expertise.

After the research

The data should preferably be stored for the long term in a national or international data repository. If this is not possible then the data should be stored by the institutional repository. Contact the intended data repository or archive in good time about the available file formats and necessary metadata, for example.

3.5 International guidelines are available for the sustainable storage of data. Of these, the international Data Seal of Approval has the simplest set of criteria. State at which existing repository the data will be stored and what type this is (for example an institutional repository or a standard repository in your discipline). Trusted Digital Repositories with a quality mark include repositories with a Data Seal of Approval, DIN-31644-, ISO- 16363- or WDS/ICSU certification. An overview of existing repositories with Data Seal of Approval can be found in this list of repositories.

According to the Netherlands Code of Conduct for Scientific Practice, raw data must be stored for a period of at least 10 years. A longer period is certainly recommended.

3.6 Make use of sustainable software to make reuse possible. When doing this consider the following points:

1. Work with preferred file formats that are not limited to specific software, e.g. CSV for spreadsheets.
2. Carefully document which version of which software the data have been produced in; just as the exact settings of equipment in some disciplines.
3. Use of software standardly used within the discipline.
4. Document the exact syntax queries in the case of statistics software, for example.

3.7 Describe which facilities (ICT or another type such as refrigerators or legal expertise) are already present for your data and which are still needed. In the case of ICT think about data storage capacity, bandwidth for data transport and calculation power for data processing. The ICT department, the university library or research support service at your institution can help you to draw up this description.

4 Standards and metadata

To make data findable and readable in the future and to be able to interpret it the data collection must be provided with descriptive information in the form of metadata. The most widely used standards can be compared with each other, such as the standardised metadata of the Dublin Core standard, SNOMED CT and the Data Documentation Initiative.

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5 Making data available

For data to be shared with third parties it is important that the necessary software or other tools needed are available for reuse. In addition it is advisable to determine which conditions a research group that wants to obtain access to your data must satisfy. Examples of this are agreements that will be made concerning methodology, publications, the access period, availability of data, the costs (handling fee), copyright aspects, etc.

5.3 State whether embargoes, licences, commercial objectives or other conditions have been imposed on the reuse of the data. If applicable: have these been recorded in a consortium agreement?

Ethics Review Application for ITC Ethics Committee

Project: INECIS

Table of content

Ethics Review Application for ITC Ethics Committee

Date of Application:	29.08.2019
Faculty:	Faculty of Geo-information Science and Earth Observation (ITC)
Department:	Department of Urban and Regional Planning and Geo-information Management (PGM)
Title of the research project:	Informal Economies and Creative Industry Strategies (INECIS) : Governance, Arrangements, Socio-spatial Dynamics and Informal Economies In Urban Kampungs in Indonesia
Context of the research:	Academic research conducted by faculty and staff members

1. PROJECT STAFF:

1.1. University of Twente	Name: Department/Faculty: E-mail: Project role:	Prof. Dr. Karin Pfeffer PGM-ITC k.pfeffer@utwente.nl Project coordinator
	Name: Department/Faculty: E-mail: Project role:	Dr. Mafalda Madureira PGM-ITC m.madureira@utwente.nl Project leader
	Name: Department/Faculty: E-mail: Project role:	Dr. Ana María Bustamante Duarte PGM-ITC a.bustamante@utwente.nl Project researcher

1.2. External partners/ collaborators	Name: Institution/Faculty Project role:	Dr. Adiwan Aritenang Institut Teknologi Bandung (ITB) /Faculty or Architecture and Urban Planning Project associate and local coordinator
	Name: Institution/Faculty Project role:	Dr. Fikri Zul Fahmi Institut Teknologi Bandung (ITB) /Faculty or Architecture and Urban Planning Project associate
	Name: Institution/Faculty Project role:	Donny Setiawang INISIATIF Project associate

2.BRIEF DESCRIPTION OF THE PROJECT:

INECIS aims to contribute to the scarce body of knowledge on the inputs of urban kampungs to the city economy in the Indonesian context. Currently, it is yet unclear how strategies, formulated at the local government level, can and should integrate and collaborate with co-existing informal economies in Indonesia. Therefore, INECIS will 1) analyse the relationship between the informal economies of the kampungs and the formal creative industries strategies promoted by the local government, and 2) explore and assess how such factors impact the spatial and socio-economic development of the urban kampungs. The project plans to involve diverse actors during the study process, such as the informal businesses and their associations, the diverse kampungs' communities, NGOs, policy makers and academia.

3. GENERAL START/END DATA FOR DATA COLLECTIONS: 9/9/2019 / 30-10-2021

4. TYPE OF DATA TO BE COLLECTED	Demographic, economic, social, and spatial data (e.g., land use data) from respondents, participants, organizations, and informants.

5. USE OF SECONDARY DATA/DOCUMENTS COLLECTED

5.1. Type:	See Annex 1. List of secondary datasets and documents collected

5.2. Information contained in the dataset	See Annex 1. List of secondary datasets and documents collected

5.3. Can the data be traced back to individuals/ organizations?	[x] Yes [ ] No

5.4. Steps towards the data privacy protection of the individuals, groups, and organizations interests involved.	The only datasets from existing information which count with information that can be classified as personal data are the Sentra businesses and Creative Industries datasets. If obtained the permission to use the data for publication, the following measures will be done to ensure anonymization on the data which might be accessible to third-parties: -The location (address) information available on the data set will be aggregate it and the original dataset will be encrypted on a separate location. - The individual names of each business as well as the names of the owners (when available) will be erased from the original secondary dataset prior conducting the analysis. Only businesses' locations will be kept for the analysis, but will be aggregated on grids of 500mx500m for publication.

6. COLLECTION OF NEW DATA

6.1. Study 1- Interviews (semi-structured and walking)

6.1.1. Approximate starting/end date of Study 1-data collection: 9/9/2019 / 15-11-2019

6.1.2. Research Population

a) Intended research population(s)	Community leaders in the kampungs Government officials Business/ community associations representatives

b) Number of individuals	8 to 12

c) Characteristics of participants to be included in the research	i) Socially recognized community leaders in the Binong Jati, Dago Pojok, and Batik Kampungs. ii) Government officials from agencies dealing with the topic of creative industries strategies in the kampungs in Bandung, Indonesia. These agencies are: Cultural and Tourism Agency of Bandung, Department of Small Industry and Informal Trading - SMEs Agency of Bandung, Research and Development Agency of Bandung, and Spatial Planning Agency of Bandung. ii) Additional relevant actors might be identified at the regional and national levels.

d) Inclusion of vulnerable population or population outside the European Union (e.g., minors (<16), people with cognitive impairments, people under institutional care, specific ethnic groups, people in another countro or any other special group)	[x] Yes [ ] No	Which? Business (co-)owners or managers in Bandung, Indonesia living in urban kampungs which might or might not be informal or low-income settlements. Reason The project is aimed at linking government policies on creative industries that might have the potential to improve the business opportunities of informal businesses located in the kampung. Therefore, interviews with local kampung leaders are essential to understand what are the business existing in the kampung, what are the constraints that they face, and to start shaping a space of trust between the researchers and the local leaders and the community. The current status relationship of the participants from this community and the government is not yet very cleared. On the one side, the government has established some programs related to the creative kampungs to support entrepreneurship. Census of economic activities have been done in the last four years by the government on the existent industries in the kampungs and their characteristics. It has been particularly focused on the SMEs. Nonetheless, still topics regarding registration of businesses and official licensing of products are considered to be sensitive topics for business owners.

e) Measures to protect the research population's insterest	We will communicate relevant information about the research project/data collection process as well as conduct and facilitate the (semi-structured and walking) interviews with the community (leaders, (co-)owners or managers of the businesses, employees, etc) and with the government officials in the local language (Bahasa). The material will have a text version but will always be verbally communicated/ read to the interviewees in Bahasa. We will aim to use simple non-technical language to ease understanding. Interviewees will be encouraged to ask for i) clarification as much as needed for ensuring full understanding, and 2) to contact the researchers at ITB, Inisiatif and ITC if needed. One contact person, and his/her/their information, per institution will be provided. The raw data from the interviews will be initially collected by ITB and stored in our shared password protected SurfDrive folder. The researchers at ITC will then stored the information in the UT server following the steps on section 6.6.c on this document.The data will be analyzed using Atlas.ti (this software works only with local copies of the files and it does not store it online- for further information visit : https://downloads.atlasti.com/docs/KB_20130322_Where_are_my_documents.pdf-)

6.1.3. Methods of Data Collection

a) Description of the study	[ ] (Online) survey research [ ] Observation research [ ] Experimental/intervention research [X] Interview research [ ] Research using focus groups and/or stakeholder workshops [ ] Other (please provide a brief description of other methods used)

b) Brief description of the research procedure for participants in the research (max 2000 characters including spaces)	Answering questions proposed during the semi-structured interview. The semi-structured interviews will be, if possible and consented by the interviewee, audiorecorded. During the walking interviews, which will only be conducted with the community leaders, they are expected to answer the proposed questions and to help us create a map of relevant actors regarding the topic of (creative) businesses in the neighborhood. Also, if consented by the interviewees, we will audiorecord such sessions. The data will be stored and analyzed as suggested in section 6.1.2.e. Time spent by each interviewee: ~45-80 mins

6.2 Study 2- Surveys

6.2.1. Approximate starting/end date of Study 2-data collection: 20/09/2019 // 20/12/2019

6.2.2. Research Population

a) Intended research population(s)	Directly: (Co-)owners and managers of a (informal) business in the kampungs Indirectly: Actors part of the supply chain and the social capital of the informal businesses in the kampungs

b) Number of individuals	~ 100-150

c) Characteristics of participants to be included in the research	The participants must be (co-)owners or managers of businesses located in the Binong Jati, Dago Pojok, or Batik Kampungs

d) Inclusion of vulnerable population or population outside the European Union (e.g., minors (<16), people with cognitive impairments, people under institutional care, specific ethnic groups, people in another countro or any other special group)	[x] Yes [ ] No	Same population group and reasons as the ones detailed in Section 6.1.2.d

e) Measures to protect the research population's insterest	Same measures as the ones proposed in Section 6.1.2.e. Regarding the raw data for the case of the surveys, it will be stored at ITC from the beginning. The data collection application used (KoBoCollect) will be directed to create a dataset which willl be stored by the INECIS' project researchers initially and then follow the steps in Section 6.6.c

6.2.3. Methods of Data Collection

a) Description of the study	[X] (Online) survey research [ ] Observation research [ ] Experimental/intervention research [ ] Interview research [ ] Research using focus groups and/or stakeholder workshops [ ] Other (please provide a brief description of other methods used)

b) Brief description of the research procedure for participants in the research (max 2000 characters including spaces)	Answering questions of the survey proposed, along with suggesting other businesses to take part on the survey since we are will use snowball sampling. The data will be stored and analyzed as suggested in section 6.1.2.e. Time spent by each participant in the survey: ~30-45 mins

6.3 Study 3- Workshops

6.3.1. Approximate starting/end date of Study 3-data collection: 1/4/2020 // 30/09/2021

6.3.2. Research Population

a) Intended research population(s)	Owners and employees of informal businesses in the kampungs Community leaders in the kampungs Business/ community associations representatives

b) Number of individuals	~ 50-100

c) Characteristics of participants to be included in the research	Participants must be (co-)owners, managers, or part of the work team of (creative informal) businesses located in the Binong Jati, Dago Pojok, or Batik Kampungs. Representatives of business or community associations who are working actively to support (creative informal) businesses in these kampungs. Community leaders in the kampungs who are interested on/related to the development of creative businesses in these kampungs.

d) Inclusion of vulnerable population or population outside the European Union (e.g., minors (<16), people with cognitive impairments, people under institutional care, specific ethnic groups, people in another countro or any other special group)	[x] Yes [ ] No	Same population group and reasons as the ones detailed in Section 6.1.2.d

e) Measures to protect the research population's insterest	Same measures as the ones proposed in Section 6.1.2.e. The raw data from the workshops will be stored by ITC from the beginning, and the pseudonimyzed dataset will be shared with our partners following the steps in Section 6.6.c.

6.3.2. Methods of Data Collection

a) Description of the study	[ ] (Online) survey research [ ] Observation research [ ] Experimental/intervention research [ ] Interview research [X] Research using focus groups and/or stakeholder workshops [ ] Other (please provide a brief description of other methods used)

b) Brief description of the research procedure for participants in the research (max 2000 characters including spaces)	Participants will take part in activities of the workshop designed to have a training component (derived from the input from the surveys and the interviews earlier) combined with participatory activities for data collection were discussions using various methods for participation such as metaplan, cultural probes, card sorting and reflective questions on topics extracted from the current Official Creative Industries Strategy. The data will be stored and analyzed as suggested in section 6.1.2.e. Time spent by each participant in the workshops: ~1-3h

6.4 Burden and Risks of Participation for All the Studies

a) Reduction of any short-term or long-term burdens and/or risks to the participants	Potential burdens or risks i) With regard to the engagement with community members, since the project is on governance, we have to be careful to not use technical language when we are communicating aims, results and activities of the research, to ease its understanding by the communities and diminish the risk of misunderstandings. ii) The data we collect from participants, particularly the one regarding to the registration status of the businesses in the kampungs could be potentially be utilized by diverse insitutions (e.g., government)as a list of businesses to target for tax-enforcing purposes. iii) Tiredness due to the extent of the survey/interview

b) Can the participants benefit from the research and/or their participation in anyway?	[X] Yes [ ] No	How? i)The research approach is based on the Teory of Change framework for which: i) We have proposed workshops with a capacity building component in which topics of interest for the development of the businesses in the kampungs will be developed and provided as training to the communities. ii) One of the outcomes of the project are policy briefs resulting from the interviews, workshops, and surveys, which can be used by the local government officers to inform their policies regarding Creative Industries and the inclusion of informal businesses in the kampungs.

c) Will the study explore the researcher to any risks when collecting data? (i.e., in potentially dangerous environments through dangeroues activities, dealing with sensitive or distressing topics, or 'lone worker'risks)	[ ] Yes [X] No

6.5 Informed Consent

a) Will you inform potential research participants about the aims, activities, burdens and risks of the research before they decide on their participation?	[X] Yes [ ] No	How? At the beginning of each data collection activity each (or the group of) participants, (depending on the activity-interview, survey or workshops) will be introduced to the project and its goals. Such introduction will be based on a brief standard script written based on the research's information leaflet and read in the local language (Bahasa) avoiding technical terms to ease its understanding. Also, this documents will state the need for requesting participants'consents, the final purpose of the collected data (research outcomes and publications), and participants' rights to withdraw their participation and their data from the research.

b) Will your research involve íncomplete information'or 'deception?	[ ] Yes [X] No

c) Which type of consent will you use?	[ ] Signed, written consent form prior to participation [ ] Active online consent before the start of the research [X] Oral (recorded) consent prior to surveys and interviews [X] Passive/tacit consent (opt out) for the workshops [ ] No consent (only exceptional cases) [ ] Other *The options of passive/tacit consent, No consent and Other required a brief explanation.	Brief explanation The passive consent might be present during the workshop after the introduction of the project and the activities' plan to the participants. Since it is a large-group setting gathering recorded oral consent might be difficult to gather. Throughout the interviews, survey moments and workshops the participants will be informed of their rights and that they can withdraw from the research at any time without justification.They will also be communicated that their data will be pseudonymized prior its analysis. If willing to withdraw their data from the analysis this has to occurr, particularly for workshops and surveys in a period of two weeks after the activity has happened. Afterward, all data will be aggregated and anonymized. See Information Leaflet and Consent Forms in Annex 2.

d) Will you clearly inform research participants that they can withdraw from the research at any time without explanation/justification?	[X] Yes [ ] No	During the introduction of each of the activities planned, we will clearly communicate, by reading in Bahasa to participants the research's information leaflet (i.e.,objectives of the research) and the consent form (i.e., detailed on the activities to be done, their rights, and their option to withdraw or stop participating at anytime on such activities if uncomfortable.)

e) Are the research participants somehow dependent on or in a subordinate position to the researcher?	[ ] Yes [X] No

f) Will participants receive any rewards, incentives or payments for participating in the research?	[X] Yes [ ] No	What type of reward, incentive or payment will be provided? Capacity development workshops (which will also count with drinks and snacks) and the policy briefs are planned as incentives for participation of both local communities and policy makers. The policy briefs can be used, first by the government to inform the revision of Bandungs' Creative Industry Strategy by proposing alternative ways to include the kampungs' informal businesses. Second, it can also be used by the owners, managers, business and community associations, and social leaders in the kampungs, as instruments with actionable proposals to improve their current conditions and to initiate dialogue with the government.

g) How will you inform participants about what will happen after their participation is concluded?	Participants of both the interviews and the surveys will be invited to be part of the workshops where some of the results of the research will be discussed. Also, (co-)owners or managers of business participating who indicate their interest on receiving further information will be sent a summary of the research results if an (e-mail) address is provided. With the community leaders and the government officials participating in the study such information will be shared by the research team through individual meetings and presentations.

6.6 Confidentiality and Anonimity

a) Does the datasets product of the studies contain personal identifiable information that can be traced back to specific individuals/organizations?	[X] Yes [ ] No	Type of personal identifiable information to be collected Location information, name of the business, name of the owner, name of supplier (person/organization), address of supplier, name of customer (person/organization), address of customer (person/organization), name of business association, name of community organization.

b) Will you make use of audio or video recording?	[X] Yes [ ] No	Brief Explanation We will audiorecord, if consented by the participants, the semi-structured interviews and the walking interviews with the community leaders. Also, pictures during the workshops might be taken, after the consent of the group participating. To guarantee the anonymization of the images (pictures) in publications and similar outputs the participants' faces on the images will be blurred or the pictures chosen will not make identification possible (choice of angles and perspectives)

c) Will all research data be anonymized before they are stored and analyzed?	[X] Yes [ ] No	How? --- As stated prior, the raw data for the interviews will be initially collected by ITB and stored in our shared password protected SurfDrive folder. For both, the interview and the workshop data will be pseudonymized for which we will use key-coding using numbers. Audio files, transcripts and codes will be stored using the UT server, which is GDPR compliant and ISO certified. Available metadata describing the data, i.e. type of data, how the coding was done and how the data was collected, will be made available using DANS-Easy. For the datasets shared between all the research partners for analysis, we will only used the key-coded datasets for such purpose. We will save the coding key in an offline hard-drive in the ITC, UT which is encripted using Veracrypt software. The data will be analyzed using Atlas.ti (this software works only with local copies of the files and it does not store it online- for further information visit : https://downloads.atlasti.com/docs/KB_20130322_Where_are_my_documents.pdf-) --- The survey data however will be anonymized before its analysis but not for the internal storage of the project. Key-coding will be used to anonymize the datasets before its release to the UT repository. The survey's metadata wll be made available using DANS-Easy. No personal data or personal variables will be made available without prior permission of the research team. The individual location data recorded as part of the survey will be spatially aggregated in the datasets which will be made available in DANS-Easy.

Appendix C Matlab code used for database construction

Code for NWP-included database

```
clear, clc,

T=readtable('Surveys_kampungs_bandung_2019_INECIS_translated_1.xlsx', 'PreserveVariableNames', true);
Tt=table2cell(T);
%readable matlab format
Database_INECIS_array=zeros(825,32);
%baselayer for the database (to speed up calculations)
Database_INECIS=string(Database_INECIS_array);
%fit for string input

A=[99,104,109];
%supplier 1, 2, 3       25-27
B=[114,116,118];
%cust 1, 2, 3           28-30
C=[121,135,149];
%buss. ass. 1, 2, 3     31(a)
D=[164,179,194];
%comm. org. 1, 2, 3     32(a)
E=[209];
%institutions           34, binary
All_NWP=[A,B,C,D,E];
%all NWP collumns
n=length(All_NWP);
%is measure time management for loop
o=size(T);
p=1;
%row position input database
%position unique ID business = BID [0,166], tie ID array = BID+200 [200,->]
q=2000;
%unique ID NWP

for d=1:o(1,1) T;
    for c=1:n All_NWP;
        if strlength(Tt(d,All_NWP(c)))~=0 && strlength(Tt(d,All_NWP(c)))~=1                %if tie is empty discontinue relation (not working correctly)
            Database_INECIS(p,1)=Tt(d,1);
%BID in Database
            Database_INECIS(p,2)=Tt(d,2);
%Business name in Database
            Database_INECIS(p,3)=p+200;
%tie ID
```

```
            Database_INECIS(p,4)=Tt(d,4);
%X coordinate
            Database_INECIS(p,5)=Tt(d,5);
%Y coordinate
            Database_INECIS(p,6)=Tt(d,7);
%Neighboorhood
            Database_INECIS(p,7)=Tt(d,24);
%product
            Database_INECIS(p,8)=Tt(d,24);
%product classified
            Database_INECIS(p,9)=Tt(d,68);
%business finance
            Database_INECIS(p,10)=Tt(d,65);
%number of employees
            Database_INECIS(p,11)=Tt(d,15);
%age group
            Database_INECIS(p,12)=Tt(d,16);
%gender
            Database_INECIS(p,13)=Tt(d,17);
%education
            Database_INECIS(p,14)=Tt(d,18);
%migration background
            Database_INECIS(p,15)=Tt(d,19);
%migrated from where
            Database_INECIS(p,16)=Tt(d,22);
%time in kampong
            %17 NWP number
            Database_INECIS(p,18)=Tt(d,All_NWP(c));
%place tie in seperate row
            Database_INECIS(p,19)=Tt(d,32);
%advantages of location
            Database_INECIS(p,20)=Tt(d,48);
%disavantages of location
            Database_INECIS(p,21)=Tt(d,(All_NWP(c)+1));
%place location NWP in seperate row
            Database_INECIS(p,22)=Tt(d,(All_NWP(c)+1));
%!!!!!!place location NWP in seperate row
            Database_INECIS(p,23)=Tt(d,95);
%location colloborators
            Database_INECIS(p,24)=Tt(d,89);
%majority employees located
            Database_INECIS(p,25)=Tt(d,94);
%collaboration yes/no
            Database_INECIS(p,26)=Tt(d,292+c);
%type of tie
            Database_INECIS(p,27)=Tt(d,(All_NWP(c)+2));
%type of agreement between business and NWP
```

```
            Database_INECIS(p,28)=Tt(d,209);
%type of institution
            Database_INECIS(p,29)=Tt(d,88);
%tie of majority employees
            Database_INECIS(p,30)=Tt(d,91);
%type of agreement with employees
            Database_INECIS(p,31)=Tt(d,98);
%exchange between NWP and business
            Database_INECIS(p,32)=Tt(d,125);
%institution only!


        %17 assigning unique ID's to individual NWP's
        g=zeros(2,1050);
        h=0;
        h1=0;
        for f=1:o
            g(1,f)=strcmp(Tt(f,2),Database_INECIS(p,18));
%check with existing business in original data
          if g(1,f)==1
            h1=1;
          end
        end

        if h1==1
%check if indcator is true
            i1=find(g(1,:)==1);
%retrieve indicator of returning values
            Database_INECIS(p,17)=Tt(i1(1,1),1);
%use first indicator (i(1,1)) for retrieval of NWP id
        end

        for e=1:(p-1)
%use all previous data to compare

g(2,e)=strcmp(Database_INECIS(e,18),Database_INECIS(p,18))
;         %compare data in collumns with previous entries
NWP
          if g(2,e)==1
            h=1;
%assign indicator of returning value
          end
        end

        if h==1
%check if indcator is true
```

```
            i=find(g(2,:)==1);
%retrieve indicator of returning values

Database_INECIS(p,17)=Database_INECIS(i(1,1),17);
%use first indicator (i(1,1)) for retrieval of NWP id
        else
%if not new, assign new id number
            Database_INECIS(p,17)=q;
            q=q+1;
%make sure the number is unique
        end

        p=p+1;
%continue operations in new cycle
        end
    end
end


writematrix(Database_INECIS,'Database_Thom_thesis_Clean.xl
sx');


%}
%{
ideas
Database_INECIS(1,111)='bla';
Index=find(contains(Database_INECIS(1,:),'bla'));

T(All_NWP(c),d);
strcmp(Tt(d,All_NWP(c)), )~=0

%Database_INECIS(p,3)=length(find(contains(Database_INECIS
(:,1),Database_INECIS(p,1))));

%Find doubles (not

%correclty yet)
Function_NWP=['supplier','customer','business
association',...
    'community organization','institutions'];
%, 'PreserveVariableNames', true
%T1=T(2:end,:);
%}
```

Code for NWP-excluded database

```
clear, clc,

T=readtable('Surveys_kampungs_bandung_2019_INECIS_translated_1.xlsx', 'PreserveVariableNames', true);
Tt=table2cell(T);
%readable matlab format
Database_INECIS_array=zeros(825,32);
%baselayer for the database (to speed up calculations)
Database_INECIS=string(Database_INECIS_array);
%fit for string input

A=[99,104,109];
%supplier 1, 2, 3        25-27
B=[114,116,118];
%cust 1, 2, 3            28-30
C=[121,135,149];
%buss. ass. 1, 2, 3      31(a)
D=[164,179,194];
%comm. org. 1, 2, 3      32(a)
E=[209];
%institutions            34, binary
All_NWP=[A,B,C,D,E];
%all NWP collumns
n=length(All_NWP);
%is measure time management for loop
o=size(T);

Database_INECIS_array=zeros(o(1,1),17);
%baselayer for the database (to speed up calculations)
Database_INECIS=string(Database_INECIS_array);
%fit for string input
for d=1:o(1,1) T;

            Database_INECIS(d,1)=Tt(d,1);
%BID in Database
            Database_INECIS(d,2)=Tt(d,2);
%Business name in Database
            %Database_INECIS(p,3)=p+200;
%tie ID
            Database_INECIS(d,4)=Tt(d,4);
%X coordinate
            Database_INECIS(d,5)=Tt(d,5);
%Y coordinate
            Database_INECIS(d,6)=Tt(d,7);
%Neighboorhood
```

```
            Database_INECIS(d,7)=Tt(d,24);
%product
            Database_INECIS(d,8)=Tt(d,24);
%product classified
            Database_INECIS(d,9)=Tt(d,68);
%business finance
            Database_INECIS(d,10)=Tt(d,65);
%number of employees
            Database_INECIS(d,11)=Tt(d,15);
%age group
            Database_INECIS(d,12)=Tt(d,16);
%gender
            Database_INECIS(d,13)=Tt(d,17);
%education
            Database_INECIS(d,14)=Tt(d,18);
%migration background
            Database_INECIS(d,15)=Tt(d,19);
%migrated from where
            Database_INECIS(d,16)=Tt(d,22);
%time in kampong
            Database_INECIS(d,17)=Tt(d,89);
%majority of employees located
            Database_INECIS(d,18)=Tt(d,32);
%advantages of location
            Database_INECIS(d,20)=Tt(d,48);
%disavantages of location
            Database_INECIS(d,19)=Tt(d,47);
%other advantage
            Database_INECIS(d,21)=Tt(d,63);
%other disadvantage
            Database_INECIS(d,22)=Tt(d,209);
%type of institution
            Database_INECIS(d,23)=Tt(d,88);
%tie of majority employees
            Database_INECIS(d,24)=Tt(d,91);
%type of agreement with employees
            Database_INECIS(d,25)=Tt(d,98);
%exchange between NWP and business
            Database_INECIS(d,26)=Tt(d,125);
%institution only!

            Database_INECIS(d,27)=Tt(d,95);
%location colloborators
            Database_INECIS(d,28)=Tt(d,94);
%collaboration yes/no
%{
p=0;
```

```
for c=1:n All_NWP;
   if strlength(Tt(d,All_NWP(c)))~=0 &&
strlength(Tt(d,All_NWP(c)))~=1               %if tie is
empty discontinue relation (not working correctly)
p=p+1;
   end
end
            Database_INECIS(d,22)=p;
%No. of NWP's of business
            %}
end

Database_INECIS(:,3)=[];
%Remove collumn 3
writematrix(Database_INECIS,'Database_Thom_thesis_business
.xlsx');
```

Appendix D Syntax used in SPSS for database construction

Syntax for all statistics used in thesis

```
* Encoding: UTF-8.

*Assumptions 1.

DATASET ACTIVATE DataSet2.

CROSSTABS

  /TABLES=Business_location_neighborhood Business_product_classified BY
L_NWP_location_classified

  /FORMAT=AVALUE TABLES

  /CELLS=ROW

  /COUNT ROUND CELL.


*Assumption 2.

DATASET ACTIVATE DataSet1.

CROSSTABS

  /TABLES=Business_location_neighborhood BY E_NWP_exchange_collaboration

  /FORMAT=AVALUE TABLES

  /CELLS=COUNT

  /COUNT ROUND CELL.


*Assumption 3.

CROSSTABS

  /TABLES=Business_location_neighborhood BY T_B_Employee_type_majority

  /FORMAT=AVALUE TABLES

  /CELLS=ROW

  /COUNT ROUND CELL.


*Assumption 4.

CROSSTABS

  /TABLES=Business_location_neighborhood BY T_NWP_institution_type

  /FORMAT=AVALUE TABLES
```

```
  /CELLS=COUNT
  /COUNT ROUND CELL.

*Assumption 5.
DATASET ACTIVATE DataSet2.
CROSSTABS
  /TABLES=Business_location_neighborhood Business_product_classified BY
L_NWP_location_classified
  /FORMAT=AVALUE TABLES
  /CELLS=ROW
  /COUNT ROUND CELL.

DATASET ACTIVATE DataSet1.
  CROSSTABS
  /TABLES=Business_location_neighborhood BY L_B_Employee_location_majority
  /FORMAT=AVALUE TABLES
  /CELLS=ROW
  /COUNT ROUND CELL.

DATASET ACTIVATE DataSet1.
CROSSTABS
  /TABLES=Business_location_neighborhood BY Business_employees_currently
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.

*Assumption 6.
DATASET ACTIVATE DataSet1.
CROSSTABS
  /TABLES=L_Business_location_disadvantages_others BY Business_location_neighborhood
  /FORMAT=AVALUE TABLES
```

```
  /CELLS=COUNT
  /COUNT ROUND CELL.

CROSSTABS
  /TABLES=Business_location_neighborhood BY E_NWP_exchange_collaboration
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.

*Assumption 7.
DATASET ACTIVATE DataSet1.
CROSSTABS
/TABLES= T_NWP_institution_type BY Business_location_neighborhood
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.


*Assumptions 8.
DATASET ACTIVATE DataSet2.
CROSSTABS
  /TABLES=NWP BY Business_location_neighborhood
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.

*Assumption 9.



*Assumption 10.
```

```
*on business matrix.
DATASET ACTIVATE DataSet1.
FREQUENCIES VARIABLES=T_NWP_institution_type
  /ORDER=ANALYSIS.

*on NWP matrix.
*makes little sense.
DATASET ACTIVATE DataSet2.
CROSSTABS
  /TABLES=NWP BY T_NWP_institution_type
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.

* Custom Tables.
DATASET ACTIVATE DataSet2.
CTABLES
  /VLABELS VARIABLES=T_NWP_institution_type T_NWP_type L_NWP_location_classified
    DISPLAY=LABEL
  /TABLE T_NWP_type [C] > T_NWP_institution_type [C] [COUNT F40.0] BY
    L_NWP_location_classified [C]
  /CATEGORIES VARIABLES=T_NWP_institution_type T_NWP_type L_NWP_location_classified
ORDER=A
    KEY=VALUE EMPTY=INCLUDE
  /CRITERIA CILEVEL=95.


*Assumption 11.
DATASET ACTIVATE DataSet1.
CROSSTABS
```

```
  /TABLES=Business_location_neighborhood BY E_NWP_exchange_collaboration
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.

*Assumption 12.
DATASET ACTIVATE DataSet2.
CROSSTABS
  /TABLES=NWP BY T_NWP_type
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.

DATASET ACTIVATE DataSet2.
* Custom Tables.
CTABLES
  /VLABELS VARIABLES=Business_location_neighborhood NWP T_NWP_type DISPLAY=LABEL
  /TABLE Business_location_neighborhood > NWP [COUNT F40.0] BY T_NWP_type
  /CATEGORIES VARIABLES=Business_location_neighborhood T_NWP_type ORDER=A KEY=VALUE
EMPTY=INCLUDE
  /CATEGORIES VARIABLES=NWP ORDER=A KEY=VALUE EMPTY=EXCLUDE
  /CRITERIA CILEVEL=95.


*Assumption 13.
DATASET ACTIVATE DataSet2.
CROSSTABS
  /TABLES=NWP BY T_NWP_type
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
```

```
*Assumption 14.
DATASET ACTIVATE DataSet1.
FREQUENCIES VARIABLES=E_NWP_institution_exchange
  /ORDER=ANALYSIS.


*Assumption 15.
DATASET ACTIVATE DataSet2.
CROSSTABS
  /TABLES=T_NWP_type BY L_NWP_location_classified
  /FORMAT=AVALUE TABLES
  /CELLS=ROW
  /COUNT TRUNCATE.

DATASET ACTIVATE DataSet2.
CROSSTABS
  /TABLES=Business_location_neighborhood BY T_NWP_type
  /FORMAT=AVALUE TABLES
  /CELLS=ROW
  /COUNT TRUNCATE.

* Custom Tables.
DATASET ACTIVATE DataSet2.
CTABLES
  /VLABELS VARIABLES=Business_location_neighborhood T_NWP_type L_NWP_location_classified
    DISPLAY=LABEL
  /TABLE Business_location_neighborhood [C] > T_NWP_type [C][ROWPCT.COUNT F40.0] BY
    L_NWP_location_classified [C]
  /CATEGORIES VARIABLES=Business_location_neighborhood T_NWP_type
L_NWP_location_classified ORDER=A
```

```
   KEY=VALUE EMPTY=INCLUDE
  /CRITERIA CILEVEL=95.

*Assumption 16.



*Assumption 19.
DATASET ACTIVATE DataSet1.
CROSSTABS
  /TABLES=Business_location_neighborhood BY Business_NWP_no
  /FORMAT=AVALUE TABLES
  /CELLS=ROW
  /COUNT ROUND CELL.

*Assumption 20.
DATASET ACTIVATE DataSet1.
CROSSTABS
  /TABLES=Business_location_neighborhood BY Business_NWP_no
  /FORMAT=AVALUE TABLES
  /CELLS=ROW
  /COUNT ROUND CELL.

*Assumption 21.
DATASET ACTIVATE DataSet1.
CROSSTABS
  /TABLES=Business_location_neighborhood BY E_NWP_exchange_collaboration
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT

*Assumption 22.
DATASET ACTIVATE DataSet1.
```

```
CROSSTABS
  /TABLES=T_NWP_institution_type BY Business_location_neighborhood
  /FORMAT=AVALUE TABLES
  /CELLS=COUNT
  /COUNT ROUND CELL.
  /COUNT ROUND CELL.

*Assumption 23.
CROSSTABS
  /TABLES=Business_location_neighborhood BY L_B_Employee_location_majority
  /FORMAT=AVALUE TABLES
  /CELLS=ROW
  /COUNT ROUND CELL.

*Assumption 24.
DATASET ACTIVATE DataSet1.
CROSSTABS
  /TABLES=Business_employees_currently BY T_B_Employee_type_majority
  /FORMAT=AVALUE TABLES
  /CELLS=COLUMN
  /COUNT ROUND CELL.

*Assumption 25.
DATASET ACTIVATE DataSet1.
FREQUENCIES VARIABLES=E_NWP_institution_exchange
  /ORDER=ANALYSIS.


*Assumption 26.
DATASET ACTIVATE DataSet1.
FREQUENCIES VARIABLES=E_NWP_institution_exchange
```

/ORDER=ANALYSIS.

Syntax for NWP-included database

```
* Encoding: UTF-8.

*Location advantages.

*Take care of the Dataset1 part!.

DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to suppliers','1').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to customers','2').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to the city center','3').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to transportation providers','4').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to similar businesses','5').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to your home','6').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to business partners','7').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Support by community/NGOs', '8').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Support government', '9').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Access to public infrastructure (electricity, sewage, paved roads, etc)', '10').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Access to land','11').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Low cost of land','12').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Others', '13').


*Numbers into different collumns (1-3 in this case, multiple response variables).

string l_adv_1 to l_adv_3 (a25).

string #char(a1).
```

```
compute #index = 1.
vector l_adv = l_adv_1 to l_adv_3.
loop #pos = 1 to char.length(L_Business_location_advantages).
compute #char = char.substr(L_Business_location_advantages,#pos,1).
if(#char <> " ") l_adv(#index) = concat(rtrim(l_adv(#index)),#char).
if(#char = " ") #index = #index + 1.
end loop.

*Assigning labels to the values.
ADD VALUE LABELS l_adv_1 to l_adv_3
   1 'Close to suppliers'
   2 'Close to customers'
   3 'Close to the city center'
   4 'Close to transportation providers'
   5 'Close to similar businesses'
   6 'Close to your home'
   7 'Close to business partners'
   8 'Support by community/NGOs'
   9 'Support by government'
   10 'Access to public infrastructure (electricity, sewage, paved roads, etc)'
   11 'Access to land'
   12 'Low cost of land'
   13 'Others'

EXECUTE.



*Location disadvantages.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
```

```
COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to suppliers','1').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to customers','2').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to the city center','3').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to transportation providers','4').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to similar businesses','5').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to your home','6').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to business partners','7').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of support by community/NGOs', '8').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of support by government', '9').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of access to public infrastructure (electricity, sewage, paved roads, etc)', '10').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of access to land','11').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'High
cost of land','12').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Others', '13').


*Numbers into different collumns (1-3 in this case, multiple response variables).

string l_disadv_1 to l_disadv_3 (a25).

string #char(a1).

compute #index = 1.

vector l_disadv = l_disadv_1 to l_disadv_3.

loop #pos = 1 to char.length(L_Business_location_disadvantages).

compute #char = char.substr(L_Business_location_disadvantages,#pos,1).

if(#char <> " ") l_disadv(#index) = concat(rtrim(l_disadv(#index)),#char).

if(#char = " ") #index = #index + 1.
```

```
end loop.
EXECUTE.


*Assigning labels to the values.
ADD VALUE LABELS l_disadv_1 to l_disadv_3
   1 'Distance to suppliers'
   2 'Distance to customers'
   3 'Distance to the city center'
   4 'Distance to transportation providers'
   5 'Distance to similar businesses'
   6 'Distance to your home'
   7 'Distance to business partners'
   8 'Lack of support by community/NGOs'
   9 'Lack of support by government'
   10 'Lack of access to public infrastructure (electricity, sewage, paved roads, etc)'
   11 'Lack of access to land'
   12 'High cost of land'
   13 'Others'

EXECUTE.


*Business finance sources.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE Business_finance = REPLACE (Business_finance,'My own sources (personal)','1').
COMPUTE Business_finance = REPLACE (Business_finance,'Associations/Cooperatives','2').
COMPUTE Business_finance = REPLACE (Business_finance,'Money lender(s)','3').
COMPUTE Business_finance = REPLACE (Business_finance,'Government','4').
COMPUTE Business_finance = REPLACE (Business_finance,'Others','5').
```

```
COMPUTE Business_finance = REPLACE (Business_finance,'Bank','6').
COMPUTE Business_finance = REPLACE (Business_finance,'Family or extended family member','7').
COMPUTE Business_finance = REPLACE (Business_finance,'Suppliers','8').
COMPUTE Business_finance = REPLACE (Business_finance,'Friends or neighbors','9').
COMPUTE Business_finance = REPLACE (Business_finance,'NGOs','10').

*Numbers into different collumns (1-3 in this case, multiple response variables).
string Business_finance_1 to Business_finance_3 (a25).
string #char(a1).
compute #index = 1.
vector Business_finance = Business_finance_1 to Business_finance_3.
loop #pos = 1 to char.length(Business_finance).
compute #char = char.substr(Business_finance,#pos,1).
if(#char <> " ") Business_finance(#index) = concat(rtrim(Business_finance(#index)),#char).
if(#char = " ") #index = #index + 1.
end loop.
EXECUTE.

ADD VALUE LABELS Business_finance_1 to Business_finance_3
  1 'My own sources (personal)'
  2 'Associations/Cooperatifs'
  3 'Money lenders'
  4 'Government'
  5 'Others'
  6 'Bank'
  7 'Family member or extended family member'
  8 'Suppliers'
  9 'Friends or neighbors'
  10 'NGOs'

*Gender.
```

```
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_gender = REPLACE (BOM_gender,'Female','1').
COMPUTE BOM_gender = REPLACE (BOM_gender,'Male','2').

ADD VALUE LABELS BOM_gender
   1 'Female'
   2 'Male'
   *Gender.

*Migration.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_migration = REPLACE (BOM_migration,'Yes','1').
COMPUTE BOM_migration = REPLACE (BOM_migration,'No','0').

ADD VALUE LABELS BOM_migration
   0 'No'
   1 'Yes'

EXECUTE.

*Age BOM.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'18-27','1').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'28-37','2').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'38-47','3').
```

```
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'48-57','4').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'58-67','5').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'>67','6').

ADD VALUE LABELS BOM_age_group
  1 '18-27'
  2 '28-37'
  3 '38-47'
  4 '48-57'
  5 '58-67'
  6 '>67'

EXECUTE.

*Time in kampung.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'<1 years','1').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'1-5 years','2').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'6-10 years','3').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'11-20 years','4').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'21-30 years','5').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'>30 years','6').

ADD VALUE LABELS BOM_time_in_kampong
  1 '<1 years'
  2 '1-5 years'
  3 '6-10 years'
  4 '11-20 years'
  5 '21-30 years'
```

```
  6 '>30 years'


EXECUTE.


*employee location L_B_Employee_location_majority.

*Take care of the Dataset1 part!.

DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'Within
the kampung','1').

COMPUTE L_B_Employee_location_majority = REPLACE
(L_B_Employee_location_majority,'Elsewhere in the city','2').

COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'Outside
the city','3').

*doesn't work due to 'mark.

*COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'It
doesn't apply','4').



ADD VALUE LABELS L_B_Employee_location_majority

  1 'Within the kampong'

  2 'Elsewhere in the city'

  3 'Outside the city'

  4 'It doesnt apply'


EXECUTE.


*Education level.

*Take care of the Dataset1 part!.

DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE BOM_education = REPLACE (BOM_education,'No formal education','1').
```

```
COMPUTE BOM_education = REPLACE (BOM_education,'Elementary school','2').
COMPUTE BOM_education = REPLACE (BOM_education,'Middle school','3').
COMPUTE BOM_education = REPLACE (BOM_education,'High school','4').
COMPUTE BOM_education = REPLACE (BOM_education,'College (Ahli Madya Diploma 1-3)','5').
COMPUTE BOM_education = REPLACE (BOM_education,'University education','6').

ADD VALUE LABELS BOM_education
  1 'No formal education'
  2 'Elementary school'
  3 'Middle school'
  4 'High school'
  5 'College (Ahli Madya Diploma 1-3)'
  6 'University education'

EXECUTE.

*NWP location L_NWP_location_classified.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE L_NWP_location_classified = REPLACE (L_NWP_location_classified,'Within kampong','1').
COMPUTE L_NWP_location_classified = REPLACE (L_NWP_location_classified,'In city','2').
COMPUTE L_NWP_location_classified = REPLACE (L_NWP_location_classified,'Outside city','3').
COMPUTE L_NWP_location_classified = REPLACE (L_NWP_location_classified,'-','4').
*doesn't work due to 'mark.
*COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'It
doesn't apply','4').

ADD VALUE LABELS L_NWP_location_classified
   1 'Within the kampong'
```

```
  2 'Elsewhere in the city'
  3 'Outside the city'
  4 'It doesnt apply'

EXECUTE.

*Type of NWP.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE T_NWP_type= REPLACE (T_NWP_type,'institution','1').
COMPUTE T_NWP_type= REPLACE (T_NWP_type,'supplier','2').
COMPUTE T_NWP_type= REPLACE (T_NWP_type,'customer','3').
COMPUTE T_NWP_type= REPLACE (T_NWP_type,'business association','4').
COMPUTE T_NWP_type= REPLACE (T_NWP_type,'community organization','5').

ADD VALUE LABELS T_NWP_type
 1 'Institution'
 2 'Supplier'
 3 'Customer'
 4 'Business association'
 5 'Community Organization'

EXECUTE.

*neighborhood business.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE Business_location_neighborhood= REPLACE
(Business_location_neighborhood,'Binong','1').
```

```
COMPUTE Business_location_neighborhood= REPLACE
(Business_location_neighborhood,'Cigadung','2').

COMPUTE Business_location_neighborhood= REPLACE (Business_location_neighborhood,'Dago
Pojok','3').


ADD VALUE LABELS Business_location_neighborhood

  1 'Binong'

  2 'Cigadung'

  3 'Dago Pojok'


EXECUTE.


*product classified.

*Take care of the Dataset1 part!.

DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Fashion','1').

COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Crafts','2').

COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Film','3').

COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Performing arts','4').

COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Souvenirs','5').

COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Advertising','6').


ADD VALUE LABELS Business_product_classified

  1 'Fashion'

  2 'Crafts'

  3 'Film'

  4 'Performing arts'

  5 'Souvenirs'

  6 'Advertising'


EXECUTE.
```

*type of institution supporting business.

*Take care of the Dataset1 part!.

DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'Local government','1').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'Provincial government','2').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'Central government','3').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'NGOs','4').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'Community or community associations/organizations','5').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'Bank(s)','6').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'University(ies)','7').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'Cooperative(s)','8').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'International organizations','9').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'None of the above','10').

COMPUTE T_NWP_institution_type= REPLACE (T_NWP_institution_type,'Other','11').

ADD VALUE LABELS T_NWP_institution_type

1 'Local government'

2 'Provincial government'

3 'Central government'

4 'NGOs'

5 'Community or community associations/organizations'

6 'Bank(s)'

7 'Universtity(ies)'

8 'Cooperative(s)'

9 'International organiations'

10 'None of the above'

11 'Other'

EXECUTE.

Syntax for NWP-excluded database

```
* Encoding: UTF-8.

*Location advantages.

*Take care of the Dataset1 part!.

DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to suppliers','1').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to customers','2').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to the city center','3').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to transportation providers','4').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to similar businesses','5').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to your home','6').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Close to business partners','7').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Support by community/NGOs', '8').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Support government', '9').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Access to public infrastructure (electricity, sewage, paved roads, etc)', '10').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Access to land','11').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Low cost of land','12').

COMPUTE L_Business_location_advantages = REPLACE (L_Business_location_advantages,'Others', '13').


*Numbers into different collumns (1-3 in this case, multiple response variables).

string l_adv_1 to l_adv_3 (a25).

string #char(a1).
```

```
compute #index = 1.
vector l_adv = l_adv_1 to l_adv_3.
loop #pos = 1 to char.length(L_Business_location_advantages).
compute #char = char.substr(L_Business_location_advantages,#pos,1).
if(#char <> " ") l_adv(#index) = concat(rtrim(l_adv(#index)),#char).
if(#char = " ") #index = #index + 1.
end loop.

*Assigning labels to the values.
ADD VALUE LABELS l_adv_1 to l_adv_3
   1 'Close to suppliers'
   2 'Close to customers'
   3 'Close to the city center'
   4 'Close to transportation providers'
   5 'Close to similar businesses'
   6 'Close to your home'
   7 'Close to business partners'
   8 'Support by community/NGOs'
   9 'Support by government'
   10 'Access to public infrastructure (electricity, sewage, paved roads, etc)'
   11 'Access to land'
   12 'Low cost of land'
   13 'Others'

EXECUTE.



*Location disadvantages.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
```

```
COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to suppliers','1').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to customers','2').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to the city center','3').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to transportation providers','4').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to similar businesses','5').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to your home','6').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Distance to business partners','7').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of support by community/NGOs', '8').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of support by government', '9').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of access to public infrastructure (electricity, sewage, paved roads, etc)', '10').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'Lack
of access to land','11').

COMPUTE L_Business_location_disadvantages = REPLACE (L_Business_location_disadvantages,'High
cost of land','12').

COMPUTE L_Business_location_disadvantages = REPLACE
(L_Business_location_disadvantages,'Others', '13').


*Numbers into different collumns (1-3 in this case, multiple response variables).

string l_disadv_1 to l_disadv_3 (a25).

string #char(a1).

compute #index = 1.

vector l_disadv = l_disadv_1 to l_disadv_3.

loop #pos = 1 to char.length(L_Business_location_disadvantages).

compute #char = char.substr(L_Business_location_disadvantages,#pos,1).

if(#char <> " ") l_disadv(#index) = concat(rtrim(l_disadv(#index)),#char).

if(#char = " ") #index = #index + 1.
```

```
end loop.
EXECUTE.



*Assigning labels to the values.
ADD VALUE LABELS l_disadv_1 to l_disadv_3
   1 'Distance to suppliers'
   2 'Distance to customers'
   3 'Distance to the city center'
   4 'Distance to transportation providers'
   5 'Distance to similar businesses'
   6 'Distance to your home'
   7 'Distance to business partners'
   8 'Lack of support by community/NGOs'
   9 'Lack of support by government'
   10 'Lack of access to public infrastructure (electricity, sewage, paved roads, etc)'
   11 'Lack of access to land'
   12 'High cost of land'
   13 'Others'


*Business finance sources.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE Business_finance = REPLACE (Business_finance,'My own sources (personal)','1').
COMPUTE Business_finance = REPLACE (Business_finance,'Associations/Cooperatifs','2').
COMPUTE Business_finance = REPLACE (Business_finance,'Money lenders','3').
COMPUTE Business_finance = REPLACE (Business_finance,'Government','4').
COMPUTE Business_finance = REPLACE (Business_finance,'Others','5').
COMPUTE Business_finance = REPLACE (Business_finance,'Bank','6').
```

```
COMPUTE Business_finance = REPLACE (Business_finance,'Family member or extended family member','7').
COMPUTE Business_finance = REPLACE (Business_finance,'Suppliers','8').
COMPUTE Business_finance = REPLACE (Business_finance,'Friends or neighbors','9').
COMPUTE Business_finance = REPLACE (Business_finance,'NGOs','10').

*Numbers into different collumns (1-3 in this case, multiple response variables).
string Business_finance_1 to Business_finance_3 (a25).
string #char(a1).
compute #index = 1.
vector Business_finance = Business_finance_1 to Business_finance_3.
loop #pos = 1 to char.length(Business_finance).
compute #char = char.substr(Business_finance,#pos,1).
if(#char <> " ") Business_finance(#index) = concat(rtrim(Business_finance(#index)),#char).
if(#char = " ") #index = #index + 1.
end loop.
EXECUTE.

ADD VALUE LABELS Business_finance_1 to Business_finance_3
  1 'My own sources (personal)'
  2 'Associations/Cooperatifs'
  3 'Money lenders'
  4 'Government'
  5 'Others'
  6 'Bank'
  7 'Family member or extended family member'
  8 'Suppliers'
  9 'Friends or neighbors'
  10 'NGOs'

*Gender.
```

```
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_gender = REPLACE (BOM_gender,'Female','1').
COMPUTE BOM_gender = REPLACE (BOM_gender,'Male','2').

ADD VALUE LABELS BOM_gender
  1 'Female'
  2 'Male'
  *Gender.

*Migration.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_migration = REPLACE (BOM_migration,'Yes','1').
COMPUTE BOM_migration = REPLACE (BOM_migration,'No','0').

ADD VALUE LABELS BOM_migration
  0 'No'
  1 'Yes'

*Age BOM.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'18-27','1').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'28-37','2').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'38-47','3').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'48-57','4').
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'58-67','5').
```

```
COMPUTE BOM_age_group = REPLACE (BOM_age_group,'>67','6').

ADD VALUE LABELS BOM_age_group
  1 '18-27'
  2 '28-37'
  3 '38-47'
  4 '48-57'
  5 '58-67'
  6 '>67'

*Time in kampung.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'<1 years','1').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'1-5 years','2').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'6-10 years','3').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'11-20 years','4').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'21-30 years','5').
COMPUTE BOM_time_in_kampong = REPLACE (BOM_time_in_kampong,'>30 years','6').

ADD VALUE LABELS BOM_time_in_kampong
  1 '<1 years'
  2 '1-5 years'
  3 '6-10 years'
  4 '11-20 years'
  5 '21-30 years'
  6 '>30 years'

*employee location L_B_Employee_location_majority.
*Take care of the Dataset1 part!.
```

```
DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'Within the kampung','1').

COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'Elsewhere in the city','2').

COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'Outside the city','3').

*doesn't work due to 'mark.

*COMPUTE L_B_Employee_location_majority = REPLACE (L_B_Employee_location_majority,'It doesn't apply','4').


*Education level.

*Take care of the Dataset1 part!.

DATASET ACTIVATE DataSet1.

*Replacing the text with numbers.

COMPUTE BOM_education = REPLACE (BOM_education,'No formal education','1').

COMPUTE BOM_education = REPLACE (BOM_education,'Elementary school','2').

COMPUTE BOM_education = REPLACE (BOM_education,'Middle school','3').

COMPUTE BOM_education = REPLACE (BOM_education,'High school','4').

COMPUTE BOM_education = REPLACE (BOM_education,'College (Ahli Madya Diploma 1-3)','5').

COMPUTE BOM_education = REPLACE (BOM_education,'University education','6').


ADD VALUE LABELS BOM_education

 1 'No formal education'

 2 'Elementary school'

 3 'Middle school'

 4 'High school'

 5 'College (Ahli Madya Diploma 1-3)'

 6 'University education'


EXECUTE.
```

```
ADD VALUE LABELS L_B_Employee_location_majority
   1 'Within the kampong'
   2 'Elsewhere in the city'
   3 'Outside the city'
   4 'It doesnt apply'

*product classified.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Fashion','1').
COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Crafts','2').
COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Film','3').
COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Performing arts','4').
COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Souvenirs','5').
COMPUTE Business_product_classified= REPLACE (Business_product_classified,'Advertising','6').

ADD VALUE LABELS Business_product_classified
  1 'Fashion'
  2 'Crafts'
  3 'Film'
  4 'Performing arts'
  5 'Souvenirs'
  6 'Advertising'

EXECUTE.

*neighborhood business.
*Take care of the Dataset1 part!.
DATASET ACTIVATE DataSet1.
*Replacing the text with numbers.
```

```
COMPUTE Business_location_neighborhood= REPLACE
(Business_location_neighborhood,'Binong','1').

COMPUTE Business_location_neighborhood= REPLACE
(Business_location_neighborhood,'Cigadung','2').

COMPUTE Business_location_neighborhood= REPLACE (Business_location_neighborhood,'Dago
Pojok','3').


ADD VALUE LABELS Business_location_neighborhood

  1 'Binong'

  2 'Cigadung'

  3 'Dago Pojok'


EXECUTE.
```

Appendix E Codes used in Atlas.TI

For SNA		
Ties		
	Family/rel. employees	Ties with employees and role of family in business
	Businesses	Ties between businesses
	Community	Ties between business and the community
	Organizations	Ties between businesses and organizations
Exchange		
	Businesses	Resources exchanged between businesses
	Organizations	Resources exchanged with organizations
	Knowledge	Knowledge as a resource
Location		
	NWP	The location of NWP's
	Type of NWP	Location specific input type of NWP's
	Product specific	Location specific per product group
	Context	Influence of the location on social networks
For case study descriptions		
Study area		
	Binong	Specific information to Binong
	Cigadung	Specific information to Cigadung
	Dago	Specific information to Dago
Creative sector		
	Organizations	Organizations active in creative sector
	Indonesia	Creative sector at nation scale
	Bandung	Creative sector at Bandung scale
While coding		
	Need of creative sector	Various recommendations and needs of businesses in creative sector
	Informality	Arose as influence on the development of the social networks and development of creative sector

Appendix F Interview formats

Interview template community leaders

Neighborhood	Person	Phone number

Hello <name>, thank you for receiving me and let me interview you. I am Thom van Harten, student Spatial Engineering at ITC faculty of University of Twente, in the Netherlands. My research focuses on the creative sector in your kampong. I combine this with research into social networks, which are the relations between people, businesses and organizations. Social networks are part of the creative sector and that is why I am focusing on them. I have analyzed some data collected last year by the team of the INECIS project on the creative sector in your kampong, and we would like to complete or check some of these information with you. **<show INECIS info sheet>**

First of all I would like to ask you if, would it be ok for you that I audio. This means that I will save the recording on a secure form and use this only as input for my analysis, at no point your name, address or any other personal details will be published. Also I have a consent form I would like to go through together, I can read it to you or you can read it yourself.

Consent form signed + recordings start

BUSINESS AND ORGANIZATIONS (gov, NGO, community, professional)

1. What role does your organization play in your kampong? #TIES
    a. What is your role within the organization?
2. How would you describe the interactions between organizations and businesses in the kampung? #TIES
    a. What help do organizations provide to businesses? #EXCHANGE OF RESOURCES
        i. Do people provide missing support from organizations themselves by working together? #TIES #EXCHANGE OF RESOURCES
    b. Where are located the organizations such as Cooperatives, NGOs, government organizations, and business associations which are active in this kampong? <show on map> #LOCATION
    c. What other activities would you like to see developed by your or another organization, that would contribute to the businesses development in this kampung? #EXCHANGE OF RESOURCES

BUSINESS TO BUSINESS

3. How would you define the current interactions between businesses in the kampung? For example of competition, collaboration, both, or other types?
    a. Could you let me know why do you think is the case (REFERING TO THE PREVIOUS QUESTION ANSWER)?#TIES
    b. Any particular way in which they help each other?#TIES
    c. What resources do they exchange? #EXCHANGE OF RESOURCES

d. Is it any particular space in the kampung where you see these relations happening more often? If yes, where? (use a map) #LOCATION

BUSINESS AND EMPLOYEES

4. How would you characterize the employees working for businesses in this kampong?
    a. How easy is it to find employees that come from this kampung, to work in the businesses here located? #LOCATION
    b. What is a common relation between the business owner or manager and the employees? #TIES
        i. Why is this such a common type of relation? #TIES
    c. What do employees bring to the businesses in the creative sector in your kampong, such skills, creativity, labor? #EXCHANGE OF RESOURCES

Interview template academics

Name	Mail address	Phone number

Hello <name>, thank you for receiving me and let me interview you. I am Thom van Harten, student Spatial Engineering at ITC in the Netherlands. I am doing research into the creative sector in Bandung, Indonesia. I combine this with research into social networks, which are the social relations between people, businesses and organizations. Social networks are part of the creative sector and that is why I am focusing on them. I have analyzed some data collected last year by the team of the INECIS project on the creative sector in three kampongs in Bandung (Dago Pojok, Cigadung, and Binong Jati) and we would like to complete or check some of these information with you. **<show INECIS info sheet>**

First of all, I would like to ask you if, would it be ok for you that I audio record this interview? This means that I will save the recording on a secure form and use it only as input for my analysis, at no point your name, address or any other personal details will be published. Also I have a consent form I would like to go through together, I can read it to you or you can read it yourself.

Consent form signed + recordings start

1. What do you study about the creative sector in Bandung? For how long have you been doing that? Etc.
    a. What do you know these areas and their creative industries in Bandung? <show map>
2. What characteristics in your experience are relevant for the creative sector development in these three study areas?
3. How do you see the importance of social networks for businesses in the creative sector in comparison with businesses in non-creative sectors?

BUSINESS TO BUSINESS

4. In your experience, how would you define the current interactions between businesses in the creative sector in Bandung, particularly in these three kampungs? For example of competition, collaboration, both, or other types?
    a. Could you let me know why do you think this?#TIES
    b. Any particular way, that you are aware of based on your work, in which they help each other?#TIES
    c. What resources do they regularly exchange? #EXCHANGE OF RESOURCES
        i. How important is information/knowledge as a resource? #EXCHANGE OF RESOURCES
    d. How do you see the three study areas differing in (REFERING TO QUESTION NUMBER 4 ANSWER) #LOCATION

BUSINESS AND ORGANIZATION

5. How would you describe the interactions between organizations and businesses in the three kampungs or on the ones you have knowledge about? #TIES
    a. What are key organizations in the development of the creative sector in these three kampongs? #TIES
    b. What in your experience is support needed for development of businesses in the creative sector? And what support is provided by organizations <as identified in a.>? #EXCHANGE OF RESOURCES
    c. And where are <as identified in a.> from? #LOCATION
    d. What differences do you see between the type of organizations, such as banks, the government, or NGOs active in the three study areas? #LOCATION
    e. How would you characterize the role of the government for the creative sector in the study areas? #TIES
    f. What do businesses in the creative sector receive from knowledge related organizations such as schools, universities and business organizations?

BUSINESS TO EMPLOYEES

6. How would you characterize the employees of businesses in the creative sector?
    a. On your experience, what is the most common relation such as family, friends, competitor, between the business owner or manager and its employees? And, why? #TIES
    b. How do creative businesses in the kampongs find employees? #TIES
    c. What is the role of family within the businesses in the creative sector? #TIES

Interview template CS expert/policy maker

Function	Name	Phone number
Creative sector employee 1		
Creative sector employee 2		

Hello <name>, thank you for receiving me and let me interview you. I am Thom van Harten, student Spatial Engineering at ITC in the Netherlands. I am doing research into the creative sector in Bandung, Indonesia. I combine this with research into social networks, which are the social relations between people, businesses and organizations. Social networks are part of the creative sector and that is why I am focusing on them. I have analyzed some data collected last year by the team of the INECIS project, a project between ITB and ITC, on the creative sector in three kampongs in Bandung (Dago Pojok, Cigadung, and Binong Jati) and we would like to complete or check some of these information with you. **<show INECIS info sheet>**

First of all, I would like to ask you if, would it be ok for you that I audio record this interview? This means that I will save the recording on a secure form and use it only as input for my analysis, at no point your name, address or any other personal details will be published. Also I have a consent form I would like to discuss, I can read it to you or you can read it by yourself.

Consent form signed + recordings start

1. What is your role within the creative sector development in Bandung?
2. What activities/events/etc. do you organize for the creative sector in Bandung? #EXCHANGE OF RESOURCES
    a. What support is given to networking activities of business owners/managers in the creative sector? By whom? #EXCHANGE OF RESOURCES

BUSINESS TO BUSINESS

3. How would you define the current interactions between businesses in the creative sector? For example of competition, collaboration, both, or other types?
    a. Could you let me know why do you think is more a (OPTION MENTIONED)?#TIES
    b. What resources do they exchange? #EXCHANGE OF RESOURCES
        i. How is this facilitated by the government or other organizations? #TIES
    c. What differences related to location and sector do you see within the creative sector? #LOCATION

BUSINESS AND ORGANIZATIONS

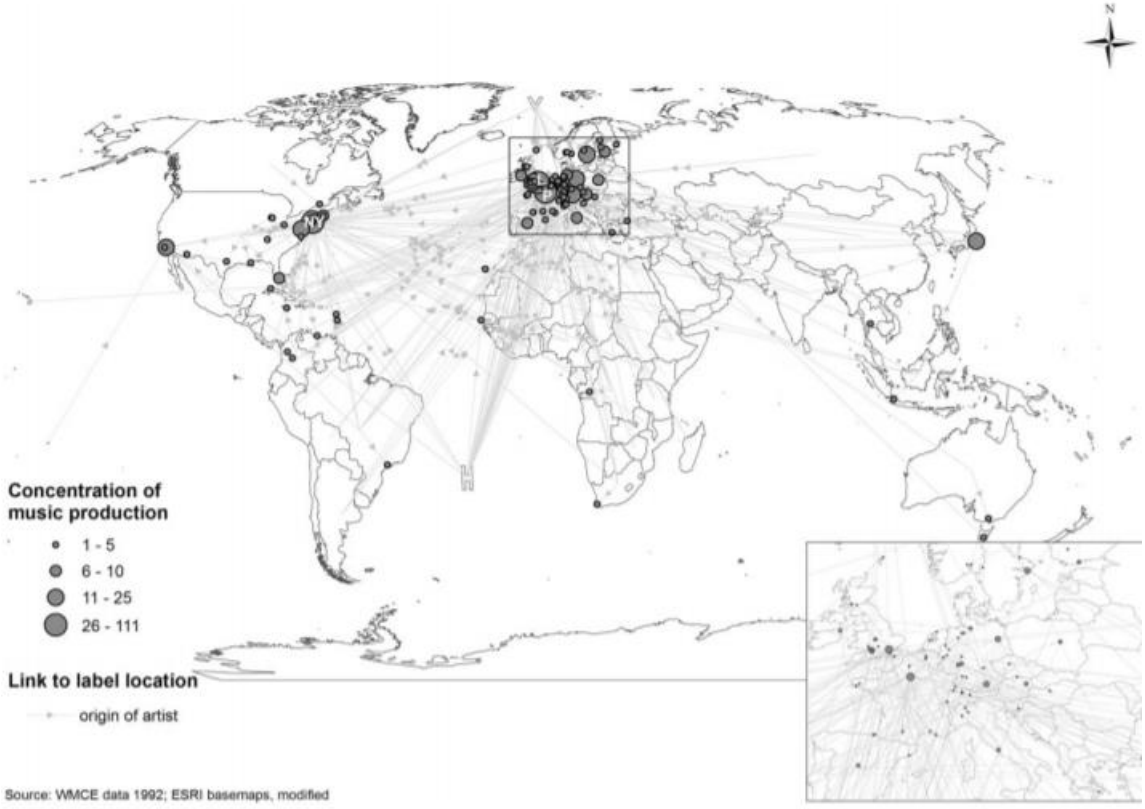
4. How would you describe the interactions between organizations and businesses in the kampung? #TIES
    a. Are there differences between the three kampongs studied in the support provided to the creative sector businesses? #LOCATION
    b. What is in your experience in the support the businesses in the creative sector need? #EXCHANGE OF RESOURCES
    c. What access to schools, training centers and universities do organizations provide? #TIES #EXCHANGE OF RESOURCES

5. How would you describe the role of the community (organizations) for the businesses in the creative sector? #TIES
6. What other activities would you like to see developed by your organization, that would contribute to the businesses development in this kampung? #EXCHANGE OF RESOURCES

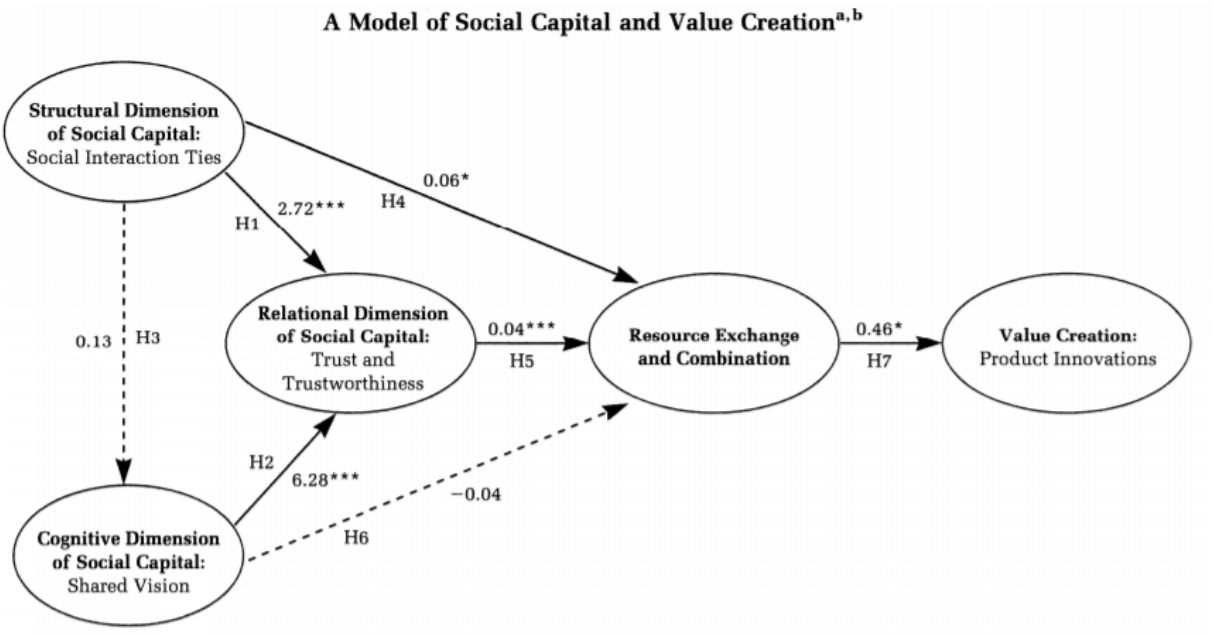
BUSINESS AND EMPLOYEES

7. What do employees bring to the businesses in the creative sector, such as skills, creativity, labor? #EXCHANGE OF RESOURCES
    a. What is the role of different types of relations such as family, friends, and neighbors within the businesses in the creative sector? #TIES

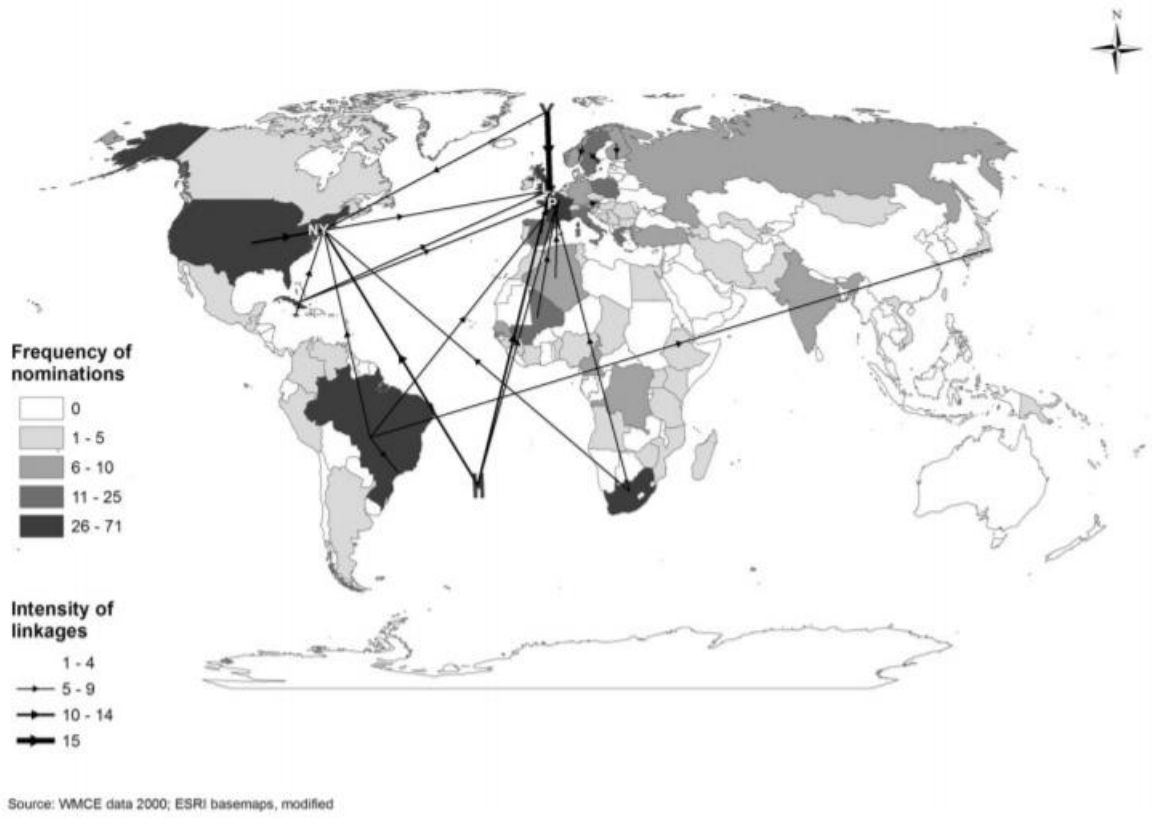
Appendix G examples of possible (GIS/social network) visualizations



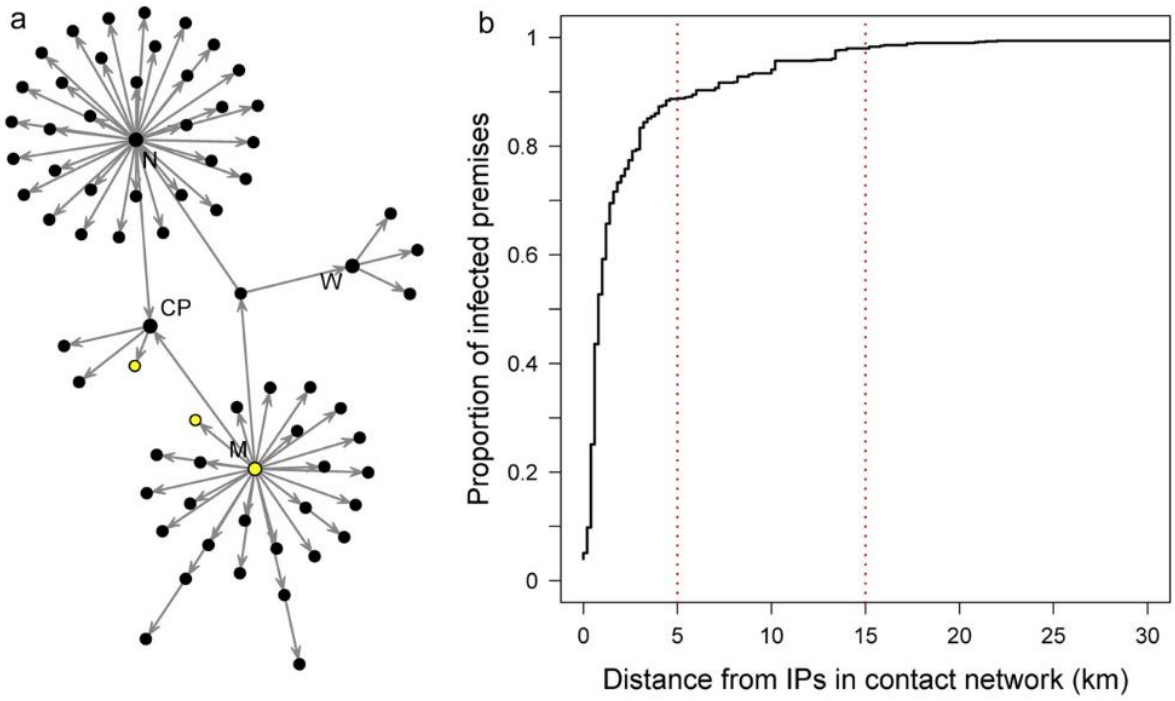
(Brandellero & Pfeffer, 2011)



(Tsai & Ghoshal, 1998)

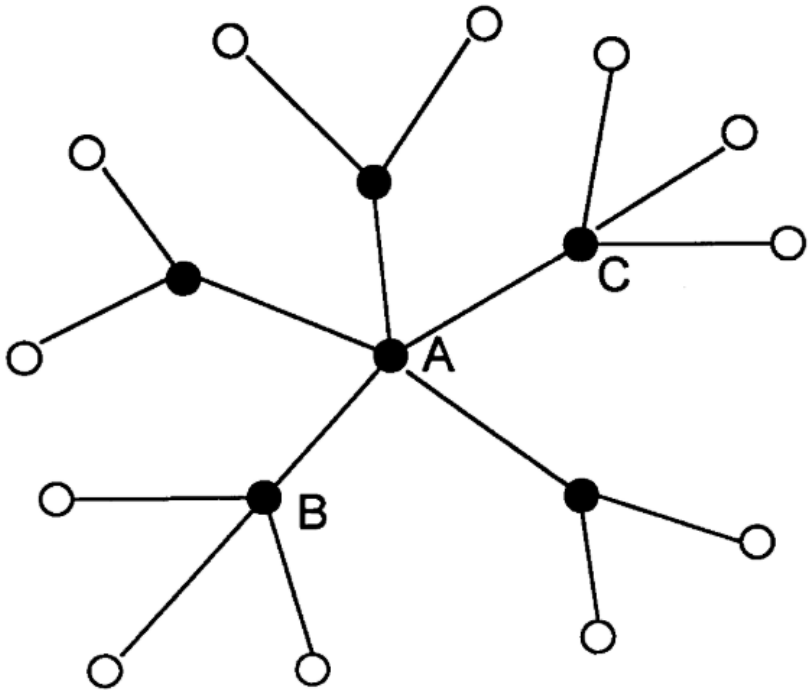


(Brandellero & Pfeffer, 2011)



(Firestone, Ward, Christley, & Dhand, 2011)

FIGURE 3
A Centralized Graph



(Haythornthwaite, 1996)

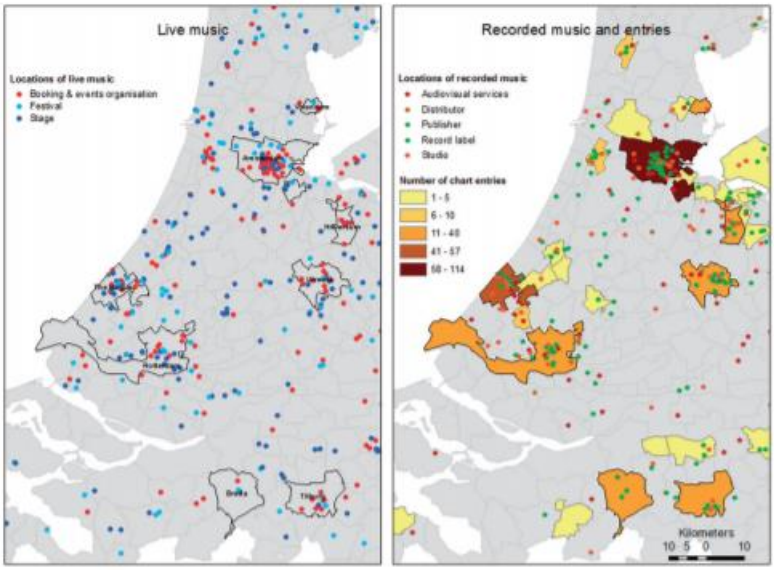
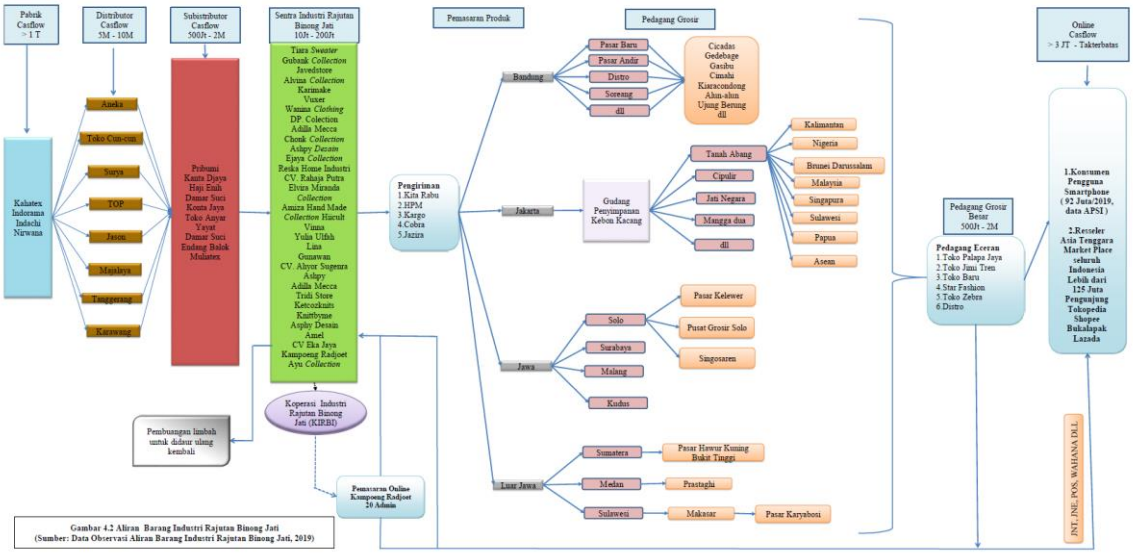


Figure 2. Concentration of chart entries and locations of live and recorded music in the Dutch Randstad (Source: Top 40 charts; MCN 2011, CBS boundaries, 2011; authors' own data).

(Brandellero & Pfeffer, 2015)



(KIRBI, private collection, 2019)