

**QUADRUPLE HELIX MAPPING COLLABORATION FOR FASHION SMALL MEDIUM
ENTERPRISE DEVELOPMENT IN BANDUNG**

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Abstract. Quadruple Helix is a system of collaboration between university, industry, government and citizen. Quadruple Helix consists of government as policy maker, university as researcher, industry as economic driver manufacturer plus community as connector between the three actors. Bandung is known as the city of fashion, as we can see from the large quantity of both supply and demand for fashion industry. This is an indication that Bandung has huge potential for creative industry development especially fashion. The aim of this study is to mapping and maximize the potential of QH actors in Bandung. The output of this research is Quadruple Helix program master plan. This research was conducted with qualitative methodology which are field observation, direct interview, secondary data and descriptive analysis for 1 year.

Keywords: *Quadruple Helix, University-Industry-Government-Community interaction, Economic Development, Creative Industry, Fashion, Small Medium Enterprise*

Introduction

Research Background

Globalization is an era of economic integration in which the flow of trade, investment, human migration and dissemination of information are moving faster. Globalization opens greater opportunities in terms of ease of access to markets, capital and technology. Indonesia is one of the countries with highest GDP growth rate and will be increasing from year to year¹. Indonesia actively participates in worldwide economic organizations such as Asia-Pacific Economic Cooperation (APEC) and G-20. Moreover, Indonesia is considered having good investment climate. It was seen through increased investment rating by Moody's Investors Service and Standard & Poor's and Fitch Ratings²

Seeing the condition of Indonesia's growing economy, it can not separated from the parties that involved in the wheel of economic movement which are university, industry, government and community. The four parties collaborate to form more effective and efficient system named Quadruple Helix. Under this system, every actor has a role and identity which are university serves as researcher (science), the government as policy maker (policy), the industry as producers (economic) and community acts as fitting the gap between those three parties (connector). This system is extension of the Triple Helix, developed by Professor of Stanford University, Henry Etzkowitz and Professor of University of Amsterdam, Loet Leydesdorff with the addition of community from citizen. It needs collaborative effort to bring the same interests, build agreement to create solutions for issues or problems encountered. The collaboration was expected to maximize the value creation process

¹ <http://www.tradingeconomics.com/indonesia/gdp>

² <http://thejakartaglobe.beritasatu.com/archive/moodys-also-says-indonesia-economy-now-investment-grade/492255/>

Bandung is one of Indonesia capital economic city. There are abundant amount of Small Medium Enterprise (SME) in Bandung which is about 2722 business units³ and most of them are fashion industry. Bandung has always been known as a center of creative industries and one of them is fashion. Fashion is one of the sub-sectors which is the largest contributor of regional revenue. It is characterized by distribution outlet (distro) and factory outlet (FO) booming that began in the 1970s and with a lot of the establishment textile materials factories. No wonder if Bandung is known as Paris Van Java.

Table 1. Quantity of Small Enterprise in Bandung (BPS Kota Bandung, 2013)

KRITERIA CRITERIA	UNIT USAHA ESTABLISH UNIT	TENAGA KERJA MANPOWER
[1]	[2]	[3]
1. INDUSTRI KECIL PANGAN	516	2.210
2. INDUSTRI KECIL SANDANG	1.237	6.253
3. INDUSTRI KECIL KIMIA DAN BAHAN BANGUNAN	36	124
4. INDUSTRI KECIL LOGAM DAN ELEKTRONIKA	222	451
5. INDUSTRI KECIL KERAJINAN	711	3.762
JUMLAH	2.722	12.800

Bandung has more than 60% of the population under 40 years old. This means human resources are very abundant. Added with environmental aspects that support the creativity of its citizens. However, the problem is the absence of collaboration in the production, imagination and the economic aspect. The ability to produce was not accompanied by the ability to adding value. Hence, the product has difficulty to be marketed. The reason is not all of SME owner know what the problem encountered so it needs to be diagnosed (Kasumaningrum, 2014). This new mindset creates a new kind of openness in the industry which can be beneficial for consumer and by large for society. It requires comprehensive system to maximize this potential. Quadruple Helix is a place for university, industry, government and community for making collaboration to develop creative economy in Bandung, especially fashion industry.

Research Questions

Based on the problem statement that already explained above, here is the research question that needed to be answered,

1. What are the general obstacles faced by fashion SMEs in Bandung to develop their business?
2. What is the proper role and function of each Quadruple Helix actor to be applied based on those obstacles?

³ <http://bandungkota.bps.go.id/publikasi/kota-bandung-dalam-angka-tahun-2014>

This synergy among relevant stakeholders avoids activities overlapping. So far there have been many activities conducted but due to the lack of integrated planning and implementation the progress was slow and did not achieve the target. This research goal is to formulate the optimum QH model to be applied by university, industry, government and community for development of fashion Small Medium Enterprise in Bandung.

Literature Review

Development Process Toward Quadruple Helix

Quadruple Helix model is a conceptual framework of collaboration between university, industry and government and community. Every actor has role and identity which are university serves as researcher (science), the government as policy maker (policy), the industry as producers (economic) and community acts as fitting the gap between those three parties (connector). To explain QH, its is much easier to know the development of QH sequentially from beginning,

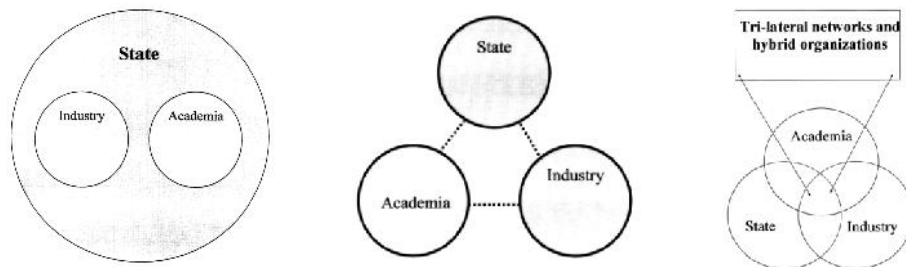


Figure 1. Statist Society, Laissez Faire Society, and Triple Helix Model

Source : Etzkowitz and Leydesdorff, 2000

The statist society model is an initial model in which the government holds major role to regulate all forms of industrial and university activities. The characteristic of this model is the presence of specialized organization associated with the government, usually in science and technology, which will be translated into legislation regulations. The laissez faire society is the initial stage where three actors was associated independently accordance basic function of each actor, the university acts as a source of knowledge with R & D activities and human resources. Industry acts as a producer and also absorbs human resources and knowledge of the university. While the government role as regulator of social and economic mechanism. The characteristic of this model is all of these actors relate to each other on a limited basis or through intermediaries. The triple helix model which is university becomes the foundation for innovation and functions like a company. Government provides capital for university to carry out research activities and industry using it in production. This model is the starting point for the university to run a 'third mission' of commercialization, besides teaching and research function (Etzkowitz, 2008)

Quadruple Helix Model

Of the three previous model, there is a form of active development of the four actors coming from citizen in the form of community. This model is more commonly used in the development of creative economy which is the active participation and support of the creative community is important. Creative people join the community and often grouped geographically as well as being richer and excited by the collaboration between communities (Kementrian Pariwisata dan Ekonomi Kreatif RI, 2014)

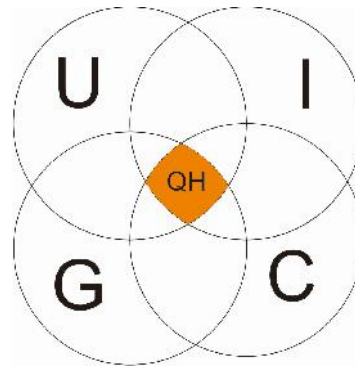


Figure 2. Quadruple Helix Model

The 4th pillar organizations are distinguished from other organizations by the fact that they work to increase the innovativeness and competitiveness. First, they provide a forum in which related institution can learn from one another. Second, they connect institution to knowledge resources and opportunities outside their immediate purview. Third, they facilitate the collaborative development of new products, services, processes, and capabilities involving universities and governments in addition to private sector firms. And finally, in some cases, nonprofit organizations have sufficient expertise to undertake innovative projects on behalf of their private sector stakeholders. (Dalziel, 2005)

Creative Economy

According to Simatupang (2008), the creative economy is a broad group of professionals, especially those in the creative industries, which contribute to the forefront of innovation. They often have the ability to think and get a spread pattern that generates new ideas. Therefore, the creative economy can be regarded as a transaction system of supply and demand that originates in the economic activity of the creative industries.



Figure 3. Economic Shift from Tangible into Intangible Assets
Source : Kementrian Pariwisata dan Ekonomi Kreatif RI, 2014

In the figure above, the economic shift from tangible assets (natural resources) into intangible assets (human resources). Creative economy is manifestation of sustainable development through creativity, in which sustainable development is a competitive economic environment and has reserves of renewable resources. The messages is, creative economy is the utilization not only renewable resources, even infinite resources like ideas, talents and creativity.

Fashion

For centuries, individuals or societies have used clothes and other body adornment as a form of nonverbal communication. Fashion is a form of free speech. It not only embraces clothing, but also accessories, jewellery, hairstyles, beauty and body art. What we wear and how and when we wear it, fashion has always been a strong indicator of social identity, social class, self image and climate (Au *et al.*, 2000). Fashion is one of the essential arts of civilization. It is arguably a more accurate barometer than the other visual arts since it was worn by everyone. It represents a personal expression of life at a given point in time and place. In the modern society where individualism has become the norm, fashion is deemed a means of self actualization (Yarwood, 1991).

Fashion is creative activity associated with the creation of clothing, footwear, and other fashion accessories design, production of fashion clothing and accessories, consultancy fashion product lines, as well as the distribution. Fashion has a very broad scope and its management has its own complexities. Ranging from raw materials (from the upstream side) , the process of fiber into textiles, then the final product mode , until the management of marketing at the mall or sales outlets (on the downstream side). Diversity of products ranging from footwear to the ends of the hair, of course have the different processes and kind of consumers. Its a broad scope to involve more than 4 million Indonesian citizens behind this industry. The fashion changes are quite dynamic and rapid, especially since entering the era of information and creative economy in the 2000s. Fashion actors from academics, designers, businesses to R&D institution began to emerging. Its rapid development is the reason of creation many channels of distribution to educational institutions that focus on fashion industry. Fashion into new Indonesian economic potential and even the world (Kementrian Pariwisata dan Ekonomi Kreatif RI, 2014).

Fashion as one of the second largest contributor sub-sectors in the creative economy to the GDP of Indonesia has dynamic definition in its development (Kementrian Pariwisata dan Ekonomi Kreatif RI, 2014). The fashion city in Indonesia is Bandung. It has the largest regional revenue contributor in 2013, reached up to \$ 164,524,236⁴. Bandung is known as the city with the potential for enormous creative industries, especially in the fashion industry. Availability of tourist facilities and shopping textile ready-made clothing in considerable amounts creates the image of Bandung as fashion city. Many creative and innovative ideas flourish in this city. No wonder Bandung known as Paris Van Java. On the demand side, many customers come from around Indonesia and even abroad such as Malaysia, Singapore or Europe. On the supply side, there are many residents who become fashionpreneur. There are many local and international brands that have store in there. In addition there are various fashion events held every few months to market fashion products.

Methodology

Research Type

This study is more appropriate to use qualitative methods because the concept or phenomenon needs to be studied more in advance, only a few studies that discuss the topic and the object of this study. Qualitative research is exploratory and more suitable if it is not certain variables studied (Morse, 1991).

Rather than using only literature review, the problem was searched also by exploratory style because it requires understanding of complex detail. This detail can only be obtained through direct interviews with sources. Qualitative research is used to develop the existing theory, in which the existing theory can not be applied directly to these conditions (Creswell, 1998).

Cassell and Symon (1994) specifies the following characteristics of qualitative research, (1) focuses on the interpretation and not quantification; (2) more emphasis on subjectivity rather than objectivity; (3) flexibility in the research process; (4) more oriented towards the process rather than results; (5) concern about context, that between the behavior and the situation there is inseparable connection in the form of experience; (6) explicit recognition that the research process affect the research situation

Source of Data

The type of data in this research is a primary data which is a data that gathered from a direct source by observation and interview. From fashion SMEs are Humblezing Clothing, Nordhen Basic Clothing, Chevalier Footwear, Mecca570 Clothing, and Esgotado Bag and from Quadruple Helix Actors are, university : Center of Innovation, Entrerpeneurship and Leadership - SBM ITB and

⁴ <http://bandungkota.bps.go.id/publikasi/kota-bandung-dalam-angka-tahun-2014>

Sekolah Tinggi Teknik Tekstil, industry : Brodo footwear, government : Dinas KUKM Bandung and community: Bandung Creative City Forum and Hijab Community Bandung .The secondary data gathered from indirect source which is offline and online data related with the Quadruple Helix (attached in references)

Research Instrument

Lincoln and Guba (1986) explains, 'The instrument of choice in naturalistic inquiry is the human. We shall see that other forms of instrumentation may be used in later phases of the inquiry, but the human is the initial and continuing mainstay. But if the human instrument has been used extensively in earlier stages of inquiry, so that an instrument can be constructed that is grounded in the human instrument of data that the product has.

The research questions itself aims to find information about the general obstacles faced by fashion SMEs in Bandung to develop their business in field of marketing, operation, finance, human resources, general management and also to know what kind of program they want to get. And for Quadruple Helix actors are information about their perspective about fashion industry development in Bandung, their previous collaboration, the proper role and function of each Quadruple Helix actor, their obstacles to build collaboration and their expectations for another actors.

Data Collecting Technique

In the process of selecting and sampling using non-probability sampling technique which is purposive sampling. The most important thing in sampling procedures in qualitative research is how to determine and locate key informant as well as ordinary informants or certain social situations that is essential information according to the research topic (Patton, 1990).

Data Analysis Technique

According to Huberman (1994), there are 3 phase of data analysis technique. First is data reduction. To select, focus, simplify, and transform data from field records. The second is presentation (display). presentation of data according to the data reduction generates organized, arranged in a pattern of relationships, so that more easily understood. And the last is verification data (conclusion drawing). Preliminary conclusions presented are still provisional and will change when found strong evidence that supports the next stage of data collection.

Research Finding and Result Analysis

Fashion SME Obstacles to Expand Business

This sources are target program participants of Quadruple Helix collaboration. The data obtained will be foundation for knowing what proper program should be implemented. There are 5 local fashion SMEs interviewed and observed, *Humblezing Clothing*, *Nordhen Basic Clothing*, *Chevalier Footwear*, *Mecca570 Clothing*, and *Esgotado Bag*. Some obstacles that occurred in the fashion business development explained on the table below,

Table 1. Fashion SME Obstacles to Expand Business

No	Obstacles	Explanation
1.	Entrepreneurial Trait	a) Time management as a full time entrepreneur b) Do not have long-term plan c) Business owner idealism. Often the desire to implement idealism is not in line with the priorities to running a business
2.	Financial	

		<ul style="list-style-type: none"> a) There is no long-term financial plan hence there is no need to expand business b) Do not have structured financial report c) Difficulty obtaining financial access
3.	Marketing	<ul style="list-style-type: none"> a. Do not have proper marketing strategy (still based on experience) according to target market. b. Brand management, a need to develop reputation and a brand image with viable staying power where the majority of SMEs fashion in Indonesia does not have deep understanding on branding management c. Need access to both domestic or international market. d. Do not have deep knowledge of trends forecast where its influence sale and inventory condition
4.	Operational	<ul style="list-style-type: none"> a. Limited use of materials because there is minimum order quantity for some particular material, caused by the demand does not meet production capacity b. Hard to find affordable and competent local vendor. c. Sharing resource and facility for cost efficiency like designer, manufacturer, photo and videographer, IT developer and brand ambassador. Facilities that used together will be more cost-effective and will help entrepreneur who have minimum capital.
5.	Human Resources	<p>Most of fashion SMEs in Bandung do not have profesional SOP for human resources. Its because they got knowledge from experience or sharing with other entrepreneurs that hence it is not well structured</p>
6.	Legality	<p>Plagiarism affects SME fashion especially at the design and manufacturing stage. Designs are often easily replicable, and even with legal protections, forgeries and copies may happened once produced an original design is on the market. And also it's hard and long bureaucracy to process anything related legalization of business</p>
7.	Environment	<p>Fashion community is important to share information and knowledge especially with another famous fashion business owner. Its needed supportive climate to support development of creative economy.</p>

Existing Function of Quadruple Helix Actors

There are two types of information obtained by researcher, existing condition and proposed collaboration model. This section discusses the existing function of the 4 actors Quadruple Helix **University**. The research object from university are Center of Innovation, Entrepreneurship and Leadership - SBM ITB and Sekolah Tinggi Teknik Tekstil. The existing function of university are,

- **Source of knowledge and technology.** Fashion SME greatly assisted by the transfer of knowledge, especially knowledge that can not be learned by autodidact. It aims to reduce the trial and error for SMEs fashion where it will save much time and cost. In addition, the university also supply some useful technology for the development of SMEs fashion business like student research for anti-bacterial fabric made from bamboo or synthetic leather material for shoes. This is very important for collaboration especially with industry because it needs innovative material to support production.
- **Supply of creative and innovative human resources .** In the fashion industry, human resource is major asset to generate economic value. With creativepreneur education obtained in university, the expected HR can increase added value in fashion industry. Education obtained must be appropriate and therefore required introduction of academia to fashion industry to find out how the current conditions and what added value can be gained. Indirectly it affects the economic development of fashion

Industry. The research object from industry is Brodo footwear where it is one of the largest fashion companies nationwide. It is different from the previous fashion SMEs which it become the object of this program. This industry act as equivalent actor to other Quadruple Helix actor which is the subject of this program. The existing function of industry are,

- **Sustainable fashion development.** The role of industry is significant to creating substantial employment opportunities for society. With the increasing number of fashion employee, it has big role in the economic development of Bandung as it is the goal of this program. This role is the main function of industry and needs to support by another Quadruple Helix actor.
- **Knowledge and experience transfer.** Industry cooperates with university to prepare creative human resources. The form of cooperation can be like provide overview and understanding to university about the world of creative industries and workshops with students so that they can practice the knowledge directly in the real world.

Government. The research object from government is Dinas KUKM Bandung. The existing function of government are,

- **Fashion product promotor.** Bandung is known as creative city. The current government has conducted small campaign to promote fashion products to public. Hopefully the image of Bandung as creative city become stronger, so that by just looking the fashion brand people will understand this product is has high value and creativity.
- **Support facility and infrastructure.** Government as provider of public space and facilitator to establish industrial area to ease access for producers and consumers. As well as assistance from the government will be more effective and efficient if industry placed in one area. Government also provides building and production equipment related to fashion and can be used free of charge.

Community. The research object from community are Bandung Creative City Forum dan Hijab Community Bandung. The existing function of community are,

- **Non-formal place to practice creativity before entering real world.** It needs gathering place for fashion entrepreneurs to brainstorm creative ideas each other. Most of the fashion industries in Bandung start from community. Community is an integral part of the Quadruple Helix because it place to collaborate. Liquid forms of community and informal community is believed to foster creativity and fresh ideas of entrepreneurs to develop creative thinking.
- **Program partner related to fashion.** Community is a group of people who have same interest in this case is fashion. There are programs from both industry and government to partner with the community. Community member act as program volunteer.

Existing Collaboration Between Quadruple Helix Actors

Based on the obtained information, there has been no collaboration involving all 4 actors but only between 2 or 3 of Quadruple Helix actors, which are,

a. University – Industry collaboration

1. STT Textile Bandung cooperates with textile company. The company provides grants for machine, tools and knowledge learned through practice class. It gives benefit for both parties. The university get full practice equipment to learn and the company gets the necessary human resources with the knowledge and experience that has been trained before.
2. CIEL SBM-ITB provides training to fashion small and medium enterprises by giving workshops in the fields of marketing, finance and general management. Also usually bring in guest lecturers of practitioners sharing knowledge and experience to the fashion start-up student entrepreneur.

b. Government – Industry collaboration. The government provides facilities in form of machine and workshop building center to help small and medium enterprises to develop their fashion business especially on fashion industry cluster. Besides that, the government also subsidizes the cost for the industry to conduct business legalization. However, these programs generally have less impact because of unfavorable publicity thus only few fashion industries can use it.

c. University – Industry – Community collaboration. In this collaboration, university act as source of knowledge (speaker) and human resource (volunteer) for program that held by community and the program participant is fashion SME. Usually the program is in form of fashion workshop or competition. This collaboration provides wider impact than the university - industry collaboration because of the community act as facilitator and organizer so that every actor can focus on its role.

d. University – Government – Industry collaboration. STT Bandung and CIEL SBM-ITB have been in cooperation with government as guest lecture. The university will provide basic knowledge in field of marketing, finance, human resource or general management to SME participant through the government as program facilitator and organizer. The program usually held in government building and all of the cost of program borne by government.

Proposed function and Potential Mapping of Quadruple Helix Actors

This section discusses the proposed function and potential of the 4 actors of Quadruple Helix, **University.** The proposed function and potential mapping of university are,

- **Sharing resource and facility.** University as research and development center in the Quadruple Helix system. Fashion SME often have difficulties assessing technologies and support structures for partnerships in their development, since major deliverers of technological services like universities and institutes normally tend to “productify” their offers for larger business. This challenge is partly related to the small businesses need for integrated technology-business advice meaning that technology offers must most often be integrated with advice on e.g. business or investment plans. This implies that small businesses normally need a team to cooperate with for management capacity development.
- **Quadruple helix actors mediator.** Because university is neutral so that the objectives of this program can be achieved without any interference from external parties.

Industry. The proposed function and potential mapping of industry are,

- **Reinforcing business networking.** Creating network of associations between fashion industry. Networking will support business, especially in addressing the problem of raw material and capital, as well as communication with other actors in the collaboration. Another benefit of establishing network and forming associations is gaining new knowledge through process of

sharing and discussion. Through this process more advanced entrepreneurs can share their experience to new entrepreneur so it grow together. (Anggoro, 2009)

- **Corporate Social Responsibility program for fashion SME.** Industry should aside a small portion of the profits for community development. It can help government to serve society. One of the role of industry in this collaboration is by sponsoring fashion program or event.

Government. The proposed function and potential mapping of government are,

- **As regulator for potential empowerment of fashion industry.** Create regulations that support economic growth, especially in the field of fashion. Funding support in the form of soft loans, cost incentive for legalization. And no less important is the one-stop service to simplify the bureaucracy. Bureaucratic process can shackle creativity

Community. The proposed function and potential mapping of community are,

- **Collect aspiration from member.** Community can become communication media to another Quadruple Helix actor. The advantage gained when conducting communication together and it will be listened by another actor. This aspiration will be the basis of issues that will be formed solution in the program.
- **Consultant of Quadruple Helix program.** Community is a group of people who have same interest in this case is fashion. Oftenly, there are person who considered as 'experts' both in theory and experience. That person could be a consultant or supervisor in any program that is carried out by QH actors so that the programs will be targeted according to the needs in the field.

Proposed Quadruple Helix

From existing and proposed function and potential actors above, then researcher make Quadruple Helix model as follows,

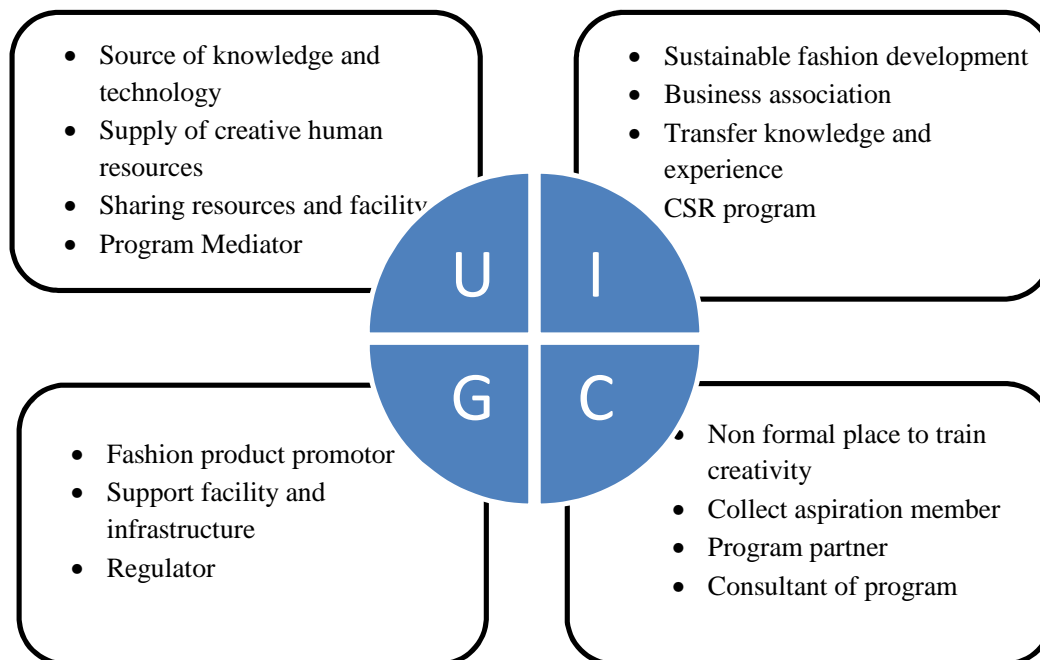


Figure 4. Proposed Quadruple Helix Model

Based on general obstacles faced by SMEs, it can be connected with the Quadruple Helix collaboration as solution,

1. Entrepreneurial Trait obstacle can be assisted by university as source of knowledge and technology and supply of creative HR, industry as transfer knowledge and experience and community as non-formal place to train creativity
2. Finance obstacle can be assisted by industry as transfer knowledge and experience and university as source of knowledge and technology
3. Marketing obstacle can be assisted by industry as transfer knowledge and experience, university as source of knowledge and technology, government as fashion product promotor
4. Operation obstacle can be assisted by industry as transfer knowledge and experience & Business association, government as fashion product promotor & support facility and infrastructure, community as non-formal place to train creativity
5. Human Resource obstacle can be assisted by industry as transfer knowledge and experience, university as source of knowledge and technology
6. Legality obstacle can be assisted by government as regulator
7. Entrepreneurial Environment obstacle can be assisted by community as non-formal place to train creativity & collect aspiration member, university as source of creative human resources, government as fashion product promotor & regulator

The difference between existing collaboration is rather than involving only two or three actors, this collaboration involves four actors which will provide more comprehensive program to participants. And also there are several additional functions that previously not maximized from each Quadruple Helix actor. Although on the development of this model researcher did not find significant difference in perception, to achieve the ideal form of collaboration its necessary to take steps as follows,

1. **Intensive communication between actors.** The actors need each other but because communication has not established it becomes counterproductive. Interactive communication between actors Quadruple Helix makes boundary become thin and relationship between actors more liquid. Communication will form trust in each other, unite perception and make the hidden creative potential can be seen so that it will be able to develop properly.
2. **Clear timeline and structure activities.** Because there are various collaboration parties and to make easier for fashion SME to follow activities.
3. **Clear job description** according to function and potential of each actor Quadruple Helix to avoid overlapping activities as this will confuse the participant fashion SMEs and organizers.
4. **Interactive or two way communications form of activities,** so that it will benefits both parties. Fashion SME can make consultation specifically about their problem or what they need from the program and the organizer get feedback for how the program achieves target

Conclusion and Recommendation

Conclusion

This research managed to answer research questions. Some of the conclusions obtained are,

1. There are 7 general obstacles faced by fashion SMEs in Bandung to expand their business which are; a) Entrepreneurial trait which are time management, long-term plan, business owner idealism. b) Finance which are long-term financial plan, structured financial report, financial access. c) Marketing which are marketing strategy based on sales channel, brand management, access to market, trends forecast. d) Operation which are limited use of materials, affordable and competent local vendor, sharing resource and facility for cost efficiency. e) Human Resource which are Standard Operation Procedure and strategy to form solid team and collaboration. f) Legality which are threatening of plagiarism and long process bureaucracy. g) Entrepreneurial environment which is supportive climate.
2. The three previous collaboration model are statist society, laissez faire and triple helix. But in creative industry there is a form of active development of the four actors coming from citizen in the form of community. This model is more commonly used in the development of creative

economy which is the active participation and support of the creative community is important. The proposed Quadruple Helix model as follows,

- a. University role as source of knowledge and technology, supply of creative and innovative human resources, sharing resource and facility, and mediator of Quadruple Helix program
- b. Industry role as sustainable fashion development, reinforcing business networking, transfer of knowledge and experience, Corporate Social Responsibility program for fashion SME
- c. Government role as fashion product promotor, support facility and infrastructure, regulator for potential empowerment of fashion industry
- d. Community role as non-formal place to practice creativity before entering real world, collect aspiration from member, consultant and partner of Quadruple Helix program

Recommendation for Quadruple Helix Actors

To achieve the ideal form of Quadruple Helix collaboration its necessary to take steps as follows; a) Intensive communication between actors. b) Clear timeline and structure activities. c) Clear job description between actors. d) Interactive or two way communications form of activities

Recommendation for Future Research

Researcher suggests to extend some topics of research which are,

1. Further research about Quadruple Helix on another kind of creative industry. There are still many creative industries outside fashion. If this collaboration implemented to another creative industry or even another industry, the impact will be great to bring prosperity to society.
2. Using quantitative method to measure the effectiveness of Quadruple Helix program to participant which are fashion SMEs. Different research methods will enrich the research results in the area of creative industries.
3. Using deeper and longer research methodology to know more detailed function and potential of Quadruple Helix actor. Along with the times, there is development in organization so it necessary to do further research.

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