THE NATURE OF THE THAI GEMS AND JEWELRY BUSINESS ACTIVITY: MICRO-ANALYSIS FOR COMPETITIVE CAPABILITY DEVELOPMENT

WIBOON SRISURIN

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The dissertation of Wiboon Srisurin has been approved by the examining committee to be partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Human Resource Development of Burapha University

Advisory Committee

.....C. Tubsree.....Principal advisor

(Associate Professor Dr. Chalong Tubsree)

.....Surin Intayot.....Co-advisor

(Dr. Surin Intayot)

Examining Committee

.....Principal examiner

(Professor Dr. Somsak Pantuwatana)

.....C. Tubsree.....Member

(Associate Professor Dr. Chalong Tubsree)

.....Surin Intayot.....Member

(Dr. Surin Intayot)

.....Sommai Jamkrajang.....Member

(Associate Professor Dr. Sommai Jamkrajang)

This dissertation has been approved by the International Graduate Studies Human Resource Development Department of the Faculty of Education to be partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Human Resource Development of Burapha University

.....V. Suratreungchai.....Faculty of Education Dean

(Associate Professor Dr. Vichit Suratreungchai)

May...19..., 2016

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Wiboon Srisurin

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Gems and jewelry have always been at the top of the Thai export list with 73% of its GDP derived from this source of income. There have been 5 research studies over the last 13 years studying recommendation strategies for the industry capability development. All of them have predominantly employed macro-analysis reporting the total situation and general atmosphere of the industry and recommended strategies as antidotes to what the industry lacked or resolved threats by leaping befits from the prevailing opportunity of what the industry was good at. This research offers a new perspective by combining a micro-analysis of the industry business activities onto the equation to indicate the reasons why such phenomenon occurred in order to determine a precise set of strategies for the industry.

This research paradigm is constructivist with a qualitative research design using a phenomenological research strategy with open-ended semi-structured interviews by pre-coding the interview guide and document study for data enquiry. Seven industry experts who represent 4 main industry segments were purposely selected to participate in the session. The 5 research studies were thoroughly studied by document review and arranged into a time-series analysis either in form of the SWOT analysis on the local industry or the world industry settings. The findings from this research are to update the industry database at the 2 levels. The research uncovered that the majority of the industry members are SMEs and their business activities are OEM and as subcontractors. Firstly, upon strategic formulation, the TOWS matrix revealed the strategic direction by its situational analysis suggesting that Thailand become a free port trading nation for gems with a centralized government department to supervise the industry. Secondly, positioning analysis from the world market structure suggested the world industry is a fragmented market and recommended a set of 5 strategies based on Thomson and Strickland (2001). These strategies were triangulated with the participants' recommendations. In retrospect, both the world and local markets are fragmented; therefore, the government, as a major player in the industry, should enhance competitive capability development at the same time as managing the economy.

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CHAPTER 1
INTRODUCTION

Background to the study

Thailand is having a similar pattern of export driven economy like many countries around the Pacific Rim region. Its percentage of exports to gross domestic product (GDP) has been averaging 73% over 5 years from 2009-2013 (Worldbank, 2014). This remark is supported by the ex-prime minister, Miss Yingluck Shinawatra's special lecture, Visions on Economy in 2012 at Napalia Room, Dusit Thani Hotel on February 1, 2012 that "Thailand economic system is relying on the world economies more than domestic economies. Our GDP base is around Baht 10 trillion consisting of income from export as high as 70% and 20% from domestic consumption or government spending" (Vision on Economy, 2012). This statement tells us the structure of our Thai economy by indicating how important export sales are to our country.

From the Top 10 Thailand Export List (2014) compiled by the Information & Communication Technology Center, Office of Permanent Secretary, Ministry of Commerce, gems and jewelry industry has primarily been a source of income for Thailand and is ranked 3rd in export sales till 2013 after being overtaken by petrol exports. The export sales during 2011-2013 were in billion USD 12.30, 13.15, and 10.09, respectively. In comparing the export sales with the first and second ranked counterparts, the automobile industry and the computer industry, respectively, the gems and jewelry is an industry belonging to Thais and it is quite clear that the industry is considered an important industry to our nation.

Government intervention is crucial as a driving force for this industry as there is apparently no industry leader to guide or to set trends for industry development. The industry is predominantly small and medium enterprises (SMEs). There were 15,777 members involving 865,656 people in 2010 referring to the journal article: "Thai Gems and Jewelry Industries Census Project (2010) conducted by University for the Thai Chamber of Commerce-UTCC for The Gem & Jewelry Institute of Thailand (Public Organization) in 2010. Based on this information,

the labor forces in this industry are substantial and important to the Thai economy.

With reference to another journal article: “The Analysis of Strategies for Developing Thai Gems and Jewelry Industry”, 2012 by Duangpastra, Chulalongkorn University, there are 9 policies from various government sectors stressing on the strategic implementation of gems and jewelry industry development. However, the main government policies that are directly engaging this industry are the National Industrial Development Master Plan 2012-2031-NIDMP by the Office of Industrial Economics-OIE, Action Plan for SME Promotion: Gems and Jewelry Industry (SMER) by Office of Small and Medium Enterprises Promotion (SME) conducted by Thammasat University in 2012 (Leowpiroj and Dhamsatitdech, 2012), and Gems & Jewelry Industry Strategic Development Plan 2014-2017 (GITR) by The Gem & Jewelry Institute of Thailand (Public Organization) -GIT researched by Chulalongkorn University in 2013 (Duangpastra, 2013). The first two government offices are under the Ministry of Industry and the third is under the Ministry of Commerce.

OIE sponsored three prominent public universities, Chiang Mai University, Chulalongkorn University and National Institute of Development Administration to do the research in order to use the study to frame up the NIDMP basing on three research studies were done on separate occasions. Chiang Mai University originated a vision statement on the research study in 2002 to promote “Thailand as a Gems & Jewelry World Center” under its research titled, “Master Plan for Gems and Jewelry Industry” (OIE 1). This goal has been adopted by most of the institutions both public and private sectors alike in the industry. Chulalongkorn University did a research study called “Development of Comparative Industrial Database Project to Enhance the Gems and Jewelry Industry Competitive Advantage” (OIE 2) in 2010 with the aim to develop a comparative database as a benchmark for the gems and jewelry industry. The National Institute of Development Administration proposed a fresh approach to strategic development under the concept of creative economy on the Strategic Development Project for Enhancing Creative Economy Potentiality in the Fashion Industry (OIE 3) in 2014. All of the research studies made strategic recommendations to OIE.

The research for OIE, SME and GIT was mainly structured by Michel E. Porter’s Model and theoretically made several strategic recommendations arising

from their macro-analysis on external and internal dimensions of the industry. Their policies were effectively implemented with the aim to achieve the goal of becoming the world center. Their macro-analysis findings did not proportionately combine the nature of the gems and jewelry business activity and its settings that is micro-analysis into their equation of strategic formulation systematically. This research is an attempt to study the nature of the industry business activity and its settings in-depth by considering the available macro-analysis findings from these five research studies in order to make strategic recommendations for the industry competitive capability development.

Statement of the problem

Resulting from the pilot study on the above five research studies and the NIDMP, the researcher found many points of their assumptions, findings and recommendations are hypothetical and challenging. Specifically, the challenge is on the notion of their strategic development heavily relying on macro-analysis employed by these leading academics during the period of 2002-2013. Some of their strategic recommendations were crafted in response to industry weaknesses based on their SWOT analysis by ramifying from the findings without counterbalance with the nature of SME where the gems and jewelry industry is and standing in. There are some examples of this type of the case. At this stage, two examples of the same kind are brought to reference. The SMER recommended the Gems Global Trends Project to become a trend setter for world and regional jewelry fashion. The similar strategic direction coincidently occurs on OIE 3. OIE took this strategy to the extreme by pushing forward the issue on the NIDMP by citing the direction of gems and jewelry industry development on page Kor. 34 (The Ministry of Commerce, 2015), "to develop country distinctiveness capable of designing product with its own identity in order to become fashion trend setter".

There are a few more points to mention from the pilot study as one of the research methodologies was problematic as the survey on OIE 2 cannot be generalized to the total population due to the low response rate of the selected categories as well as some of the other research assumptions were skeptical prone to many challenges. The quote was "in 2001, the export value of the industry was 80 billion Baht with the value added of around 80 billion Baht" from OIE 1.

As a matter of fact, most of the raw materials, e.g., precious metals and stones, are imported. These issues among the others are discussed further in Chapter 2.

In principle, the macro-analysis is purposively for reporting the total situation and general atmosphere of the industry. It does perhaps to some extent reveal tendencies that might be developed in the future. However, this macro-analysis does not tell the supporting reasons behind the decision causing such a change. The elements of the nature of the business activity and settings in the form of micro-analysis of the industry do. On the one hand, the influential micro-analysis factors are from the people in the industry and their settings. On the other hand, it is also framework of practice for every party in the industry to perform across from supplier, producer and customer as the industry norms in its own accord. In sum, it is necessary to link macro-analysis in scrutiny with the micro-analysis coming into terms of formulating industry competitive capability development.

Significance of the study

The usefulness of this research is three fold. Firstly, the findings will bring about an understanding on the nature of the gems and jewelry industry business activity as well as providing a framework for future research on this industry. Secondly, the findings will present coherent views from leading institutions across the sub-industry within the gems and jewelry industry on the industry competitive capability development. It may call for attention of all concerned parties to review their stance on the issue. Lastly, the study recommends strategies to develop competitive capability formulated from the macro- and micro-analysis that will help to improve policy and practice.

The research questions

The study is in search for a consensus on the nature of the gems and jewelry industry business activity and its settings on the one hand and compositions of sub-industry making up the gems and jewelry industry on the other. Together with the proposed goals and recommendations enquired from sub-industry members of the gems and jewelry industry yet to discover elements would facilitate establishing criteria to review the industry strategy. Hence, the three central research questions are:

1. What is the nature of the Thai gems and jewelry business activity?

2. What is the nature of the business activity providing micro-analysis for competitive capability development?

3. What are the strategic recommendations to develop competitive capability formulated from the macro-analysis and the micro-analysis to promote the Thai gems and jewelry industry achieving sustainable growth?

These research questions are supported by the two research sub-questions below:

1. What is the world gems and jewelry market structure? And what is the Thai gems and jewelry industry positioning to the world market?

2. What are the Thai gems and jewelry industry competitive advantage developments ?

Purposes of the study

Purposes of the study are:

1. To explore the nature of the Thai gems and jewelry business activity that is important factors influencing the direction of the industry development.

2. To seek opinions on the notion of competitive capability in relation to the nature of business activity from various experienced parties who have vested interests in the Thai gems and jewelry industry.

3. To describe the proposed strategic recommendations from the study.

Scope of research

Based on export sales report prepared by the Information & Communication Technology Center, Office of Permanent Secretary, the Ministry of Commerce, the gems and jewelry industry is categorized into 5 groups. Three groups are raw material providers: gold scrap, gemstones and synthetics and two groups are jewelry makers: fine and costume jewelry. This study does not include costume jewelry and synthetics. This is due to the reason that the two groups of export sales are relatively small making up less than 5% of total export and their production and distribution channels are operated differently than the gemstones and fine jewelry. The structure of the gems and jewelry industry export sales is shown below:

Table 1. 2014 Thailand gems & Jewelry exports

2014 Thailand gems & jewelry exports	Million USD	%
Gemstones	2,784.60	27.62%
Fine jewelry	3,853.60	38.23%
Costume jewelry	406.5	4.03%
Synthetics	118.4	1.17%
Gold scrap	2,917.20	28.94%
Total million USD	10,080.27	100.00%

Sources: Information & Communication Technology Center, Office of Permanent Secretary, Ministry of Commerce (9-1-2015)

Please note that gold scrap is melted jewelry scraps in the form of dole mainly from gold shops and pawn shops around Thailand exported to be refined for 99.99% gold bar. This business has surged since the gold price became volatile for the last few years. Indeed, these figures do not include the unofficial cross border trade where jewelry and gold bars are easily smuggled across borders to neighboring countries. On top of this, these figures do not include local jewelry consumption both the traditional 96.5% gold ornament, and fine gemstones and diamond jewelry.

In general, the sub-industry is defined by the nature of its business activity as metals, gemstones, manufacturing, and trading. The local trading activity of 96.5% solid gold ornaments is included in the study as it offers a high potential for export, particularly to neighboring countries, and it involves a number of workforces. This research focuses on four main core activities of the sub-industries whereas their supply chain activities are starting from product design, material procurement, manufacturing and distribution. Even though the value-added are made at the distribution level while the gold scrap export price is marginal, but the metal refinery function is significant in terms of economics and environmental contributions. Ability for a Thai to refine gold and silver to the certified level of London Bullion Market Association (LBMA) would enable Thailand to substantially reduce gold bar and silver granule imports either for domestic consumption or making jewelry for export.

Limitations

There are limitations to consider as the research has excluded the costume and synthetics from the scope of study as they are not significant to total exports. However, these two might have “unforeseen contributions” to the industry one way to another yet to study. Moreover, the gold mining sector is also not included in this study since there is only one operative gold mine in the section, namely Akara Mining. The other mine called Tungkham Mining has been temporarily closed due to an environmental dispute with locals and non-government organizations (NGOs). The gold mine produces in form of dole is totally exported in the form of scrap as per the Chief Operation Officer’s lecture given on the seminar that the researcher attended in late October 2014. Apparently, the dole export from this mine is less significant to total scrap exports.

Conclusion

The gems and jewelry industry is one of the target leading export sectors that several governments have been promoting for many years till the present administration. This industry provides a source of income to the country via export as well as associating with high employment prospects to Thais. Government intervention is utmost importance to the industry as the gems and jewelry industry is fragmented consisting mostly of SMEs. A number of universities have conducted research on the industry for government offices and public organizations in consideration for their policy formulation toward the industry development particularly to strengthen its competitive capability. These five research studies strictly followed the path of the macro-analysis discipline. These macro-databases were also used for data interpretation and subsequently became their strategic recommendations. This research left out taking unless otherwise too little bringing the part of industry micro-analysis for contemplation. Their strategic plans were then tended to “cure the weaknesses” of the industry rather than to “reinforce the foundation” fundamentally that is what the industry is standing. This research is to explore the nature of the Thai gems and jewelry business activity that may have been important factors influencing the direction of the industry development and to propose strategic recommendations for developing the industry competitive capability.

CHAPTER 2
INDUSTRY AND GOVERNMENT POLICIES

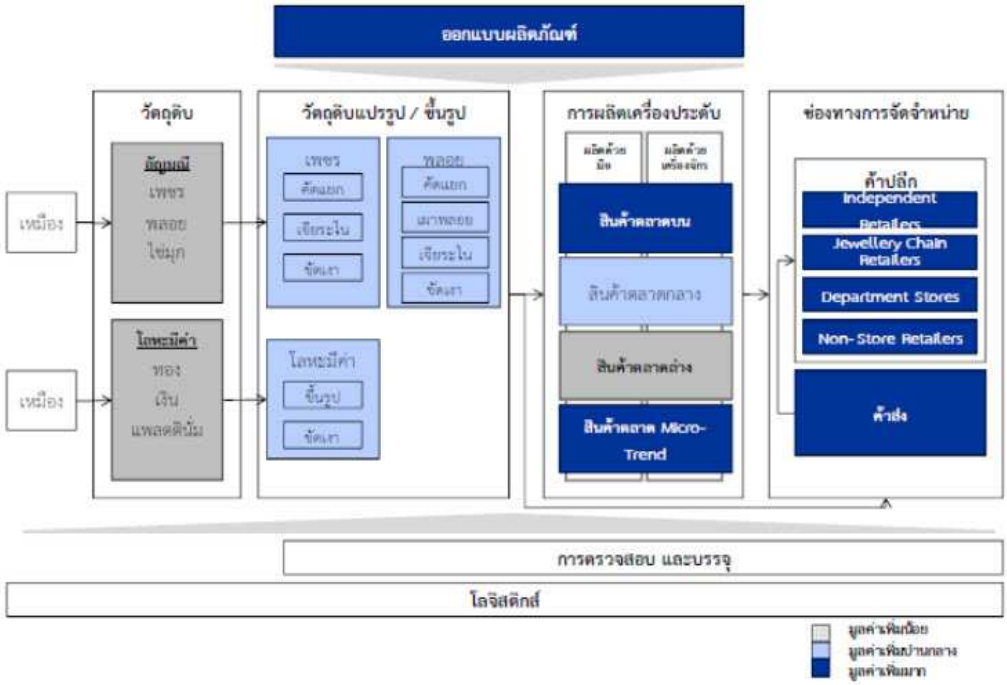
To understand the macro views of the gems and jewelry industry helps to find the relationship of the government policies to the industry. The relationship is defined as co-existence of their mutual benefits progressing upon the industry development. It is known by now that government intervention is the utmost importance and desirable for the industry that SMEs predominate. It is vital to have precise strategic plans to aid and thus support the industry members on a timely basis. Since government intervention is crucial to the industry development, it is certainly necessary to learn how the policies were formulated on what grounds and assumptions. This chapter will guide you through study of the industry in relation to the government policies.

Industry structure

The gems and jewelry industry by definition to the OIE 3 embraces five main business activities in the form of the supply chain shown in Figure 1. There are two streams of raw materials to begin with, which are stone mining and precious metals mining. The raw materials are cultivated and brought to the processes of semi-fabrication to become intermediary products ready for jewelry production. In this case, the rough stones are sourced and cut and the doles are refined and cast for mounts. Then, those intermediaries go through the production processes for different classes of products either hand or machine made. Products are categorized into four classes: high-end, medium-end, low-end and micro trend. Sometimes, products are classified into three types by physical looks: gold jewelry, silver jewelry, and diamond/ gemstone jewelry. The gold jewelry is simply those 96.5% solid gold ornaments for local market and cross border trade to neighboring countries. The silver jewelry and diamond/ gemstone jewelry are mainly for the export market and diamond jewelry has recently become popular in the domestic market. Product design and development is a catalyst to enhance value of the jewelry piece right from the stage of semi-fabrication to manufacture, i.e., fancy cut and mount design. Finally, the finished pieces of

jewelry will be sold at various types of distribution channels to consumers. These business activities are bounded by three main operational activities: quality control; packaging; and logistics (see Figure 1).

ภาพที่ 1.1 โครงสร้างอุตสาหกรรมอัญมณีและเครื่องประดับ



ที่มา: สถาบันบัณฑิตพัฒนบริหารศาสตร์และสำนักงานเศรษฐกิจอุตสาหกรรม สิงหาคม 2554 โครงการจัดทำยุทธศาสตร์ การพัฒนาศักยภาพเศรษฐกิจเชิงสร้างสรรค์ในอุตสาหกรรมแฟชั่น

Figure 1 Gems & jewelry industry structure (9-1-2015, p.194)

This diagram also shows where most profit is made from distribution, product design and high-end jewelry. The Thai gems and jewelry industry covers most of the activities on the diagram in exception to stone and metal mining and the overseas distribution channels of wholesaling and department stores even though some may claim that Thailand has gold mines and some products are branded and being distributed worldwide. However, these activities are too minimal in comparison with the world gems and jewelry industry by large. Please note that the US and European department stores and superstore mass merchandisers are doing jewelry sales under their own brand. It is interesting to also note that the non-store retailers are TV shopping, catalogue or mail order, and e-commerce. The product development,

quality control and logistics are normally assimilating to the main operation of the four main business activities: mining, semi-fabrication, manufacturing, and distribution. These four business activities constitute a sub-industry by their own rights.

Forceful external factors

The most influential factors to affect the industry are fundamentally the world and domestic economy. Prior to discussion on the effect of external factors, it is crucial to understand customer perceptions on jewelry. There are a split of perceptions on jewelry and ornaments of the East and the West. In general, the locals look upon gold jewelry having a high gold content at 96.5% as an “investment” to express one’s socio-economic status while the West perceives jewelry as a fashionable luxury product. The local social value towards gold jewelry remains with the full scale introduction of diamond jewelry penetrating into the local market for the last 10 years at shopping malls and department stores on the working women segment. This phenomena does not weaken the dominant social value but diamond jewelry is an additional items of one’s fashionable segment rather than replacing the gold ornament since the gold piece can be sold at a local goldsmith or pawn shop on the price of the day other than the diamond jewelry. However, the alternative investment of gold bar has temporarily crippled the gold ornament market for the last 4 years. At present, the situation of gold ornament consumption resumes as the price of the gold has plummeted recently.

Generally speaking, jewelry is somehow considered as a luxury product. People tend to cut spending on jewelry over the other necessities on the verge of an economic downturn. Even at the height of the economic boom, there were some substituted products lining up replacing its demand, e.g., electronic gadgets, cosmetics, apparel, and so on. The world jewelry market has been affected by the price of gold surging as that is the major cost of production. The price/ oz. went from USD 412 in 2004 to its highest at USD 1,900 in 2011 and is currently at USD 1,200 as shown in Figure 2.

Sources: WWW.kitco.com extracted on 10-12-2014

Figure 2 Gold price 2004-2014

This phenomenon resulted from the world crisis starting from the subprime mortgage crisis in the USA when the Thai major jewelry market swept through EU markets accentuating the Japanese market which has been in economic stagnation over the last 10 years. Please note that the cost of gold makes up by average almost half of the cost of a jewelry piece on the medium-end jewelry. This class of jewelry is what the NIDMP targets to develop the Thai gems and jewelry industry to be specified on page Kor. 34 and Thais are currently good at this segment. Apart from this high raw material price, the economic crisis in the West has given rise to the THB strengthening and fluctuating on the high side over this period. This economic chain reaction has made a piece of jewelry more expensive than ever. The situation of high raw material costs, a slump in export destination markets and currency turbulence have overshadowed Thai export sales for many years. As mentioned earlier, the Thai economy relies on export income as its export to GDP is certainly high. The Thai economy has immensely slowed down coupled with the side effects on the aftermath of the popular policies has hampered domestic spending. This industry is at a crossroads as there has just been a sign of incremental economic recovery in the major markets recently. These factors should be necessarily taken in consideration of the industry analysis for the policy formulation.

The value of the gems and jewelry industry

The value of any industry is normally measured by the end user sales sales according to the marketing valuation method. The end user sales sales in this sense are sales through domestic sales and overseas export sales. Unfortunately, there is only export figure available as an official record while the domestic sales figures are unknown as there is no published report available. The export figure is extracted from the Information & Communication Center, Office of Permanent Secretary, Ministry of Commerce with collaboration from the Customs Department as shown in Table 2. Discussion in this section begins with domestic sales and is followed by export sales. Domestic sales consists of at least 3 major sales categories as follows:

1. Nationwide sales from around 8,000 goldsmith shops and counter sales of gems and diamond jewelry at major department stores;
2. Sales of jewelry at tourist sites in Bangkok, Chiang Mai, Pattaya, and Phuket and;
3. Cross border trade to all neighboring countries, e.g., Myanmar, Cambodia, Laos, and Malaysia.

Table 2. Comparative import & export during period 2011-2014

Gem & jewelry section

Expressed in USD million (,000,000)

Import turnovers USD million (,000,000)

Code	Particular	2011	2012	2013	2014
311010000	Diamond	1,855.78	1,937.36	1,360.30	976.52
311020000	Precious stone	313.98	330.08	338.15	368.78
	Synthetic precious				
311030000	Stone	86.94	102.11	121.12	132.98
311040000	Pearls	21.15	19.30	23.63	23.27
311050000	Gold	16,464.83	12,378.57	15,056.55	6,612.47
311060000	Silver	996.51	897.09	744.14	566.78

Table 2. (Continue)

Code	Particular	2011	2012	2013	2014
311070000	Platinum	53.21	52.99	53.77	54.02
311080000	Precious metal and other metal	125.16	87.28	125.98	135.46
311000000	Jewelry including silver, brass, gold (total)	19,917.56	15,804.78	17,823.63	8,870.28
Export turnovers USD million (,000,000)					
302001000	Precious stone	2,077.50	2,115.83	2,448.72	2,784.60
302010100	Diamond	1,461.65	1,492.62	1,675.39	1,852.90
302010200	Precious stone other than diamond	604.51	611.39	757.02	917.20
302010300	Pearl	11.34	11.82	16.31	14.40
302020000	Articles of jewelry and parts	3,692.76	3,767.20	3,725.41	3,853.60
302020100	Articles of silver	1,540.37	1,519.45	1,603.67	1,694.00
302020200	Articles of gold	1,969.01	2,066.88	1,937.26	1,899.80
302020300	Articles of precious metals	183.38	180.87	184.48	259.80
302030000	Imitation jewelry	354.00	375.02	362.37	406.50
302040000	Synthetic precious stones	116.41	119.22	139.84	118.40
302050000	Unwrought gold	5,897.30	6,637.62	3,272.51	2,779.70
302060000	Other article of precious metals clad	163.13	132.66	136.52	137.50
302000000	Precious stones & jewelry (total)	12,301.10	13,147.55	10,085.37	10,080.27

Sources: Information & Communication Technology Center, Office of Permanent Secretary, Ministry of Commerce (18-1-2015)

Goldsmith shops are mostly single owner shops rather than company limited which compulsory less required doing proper accounts filing. Accordingly, their sales are not available seemingly to the cross border trade that is mainly unofficial trade. Duangpastra (2014) gave a lecture on his research findings on the cross border trade at the Tawana Hotel that, the value of estimated export from Thailand to Myanmar, Malaysia, Cambodia, and Laos are in million THB per year at 569, 2,203, 2,575 and 959 respectively. The official cross border trade is recorded only THB million 23, 763, 2,539 and 156. None of the gold bars and jewelry are declared upon custom proceedings. These gold bars, gems, diamonds and jewelry categories are prone to be unofficial trade items as they are conveniently delivered by hand. The researcher believes that the value of this industry is substantial as to combine export sales to the local consumption, tourist sales and the cross border trade.

The figures on the export sales report are not straight forward by using them to calculate for the local consumption. According to Table 2, the value of imports and exports of goods in different categories do not simply mean that local consumption equals total import deducted export as it is still missing links of three main databases to take in consideration. Those databases comprise the outstanding and carried forward stock either in terms of raw materials and jewelry of the whole country at the retail outlets; the value of unofficial cross border trade either import or export; or the domestic sales from the gold shops and sales to the tourists.

One may notice that there is no jewelry import category on the import list and the value of exported unwrought gold was very high related to the tremendous import of gold bar. The purchase of gold bars is for raw material production of both export jewelry and the local gold jewelry; and to keep for investment. Structurally, the figure of each category of imports and exports will not be compared to any extend other than the purposes of import of the item which are varied and cannot be traced to confirm the form of its final sales. For example, a diamond might be imported and cut for either the purpose of trading or manufacturing for a piece of jewelry for either export or local sales. Therefore, the imported diamond category deducted with the export diamonds will not equal to local consumption since it can be used for production of either export or local consumption.

Furthermore, precious metals are commodity products and are priced in USD. It is common to see the gold price go up due to the US currency weakening rather than the gold price increasing. This is particularly true to the situation during the world economic recession and recovery. In effect, the value of imports and exports three years ago might not be relevant to last year's figure even compared to the same USD currency. It is plausible to argue that sales growth each year could be resulting from commodity price fluctuation during 2008-2011.

In summary, data users should take precaution of using these total import and export figures even in USD. Needless to say it is quoting them for reference in THB. The figures are then bearing double exposure. Apart from the complex commodity price, the reference figures will be topped up with another layer of currency exchange diversity. The OIE 1, SMER and GITR were referring to the export sales nominated in THB. At first glance of the export figures, the Articles of Jewelry and parts seemed to be stagnated as the export sales have been at around USD 3.7 billion for the last 3 years. Bearing in mind the commodity price effect as the gold price hit its highest at USD 1,900 in 2011 and incrementally declined to USD 1,200 in 2014. The same trend applies to the silver price. Following this logical thinking, jewelry exports have been in fact having sales growth over this period. This is not however applied to the export of precious stones. The reading of the precious stones is straight forward. There has been growth of their export figures from 2011-13 at USD 2.07, 2.11 and 2.44 billion, respectively. Lastly, the gold bar imports and the unwrought gold exports are certainly interesting to study as they should have the unwrought export for refinery at all when Thailand has many world class refinery facilities. Structurally, all sub-industries are vividly important and have their roles to play in the gems and jewelry industry. They have the potential to grow the Thai economy.

The gems and jewelry industry members

In order to understand the nature of the studied subject, a simple analysis tool to categorize samples into groups based on their similar properties they share is in use. Conceptually, grouping is to categorize one or more distinctive characteristics of the subject to classify. This research confined its sample classification of the gems and jewelry members based on the Industry Census conducted by UTCC for GIT

in 2010. The researcher agreed that the UTCC captured most of the important attributes of the people in the gems and jewelry industry which are a labor intensive industry. It is of the views that there are 3 primary factors of the entrepreneurship of this industry relating to their size of business activities. These factors consist of the number of workers; registered capital; and sales determining the size of their operation. As far as the data research from document study is concerned, the most difficult factor to identify and determine is finding their sales. The researcher prepared the data from the UTCC findings into Table 3 as shown below:

Table 3. Thai gems and jewelry industries census project (Thammaruaksa, 2010)

The Dept. of Applied Statistics, School of Science, University of The Thai Chamber of Commerce conducted the project for The Gems and Jewelry Institute of Thailand (Public Organization) Size of Business in Operation			
Size	**Characteristics**	**No.**	**%**
Big	More than 200 workers with registered capital THB 20 m. up	380	2.41%
Medium	51 - 200 workers with registered capital THB 2 - 20 m.	2,615	16.57%
Small	Less than 50 workers with registered capital THB 2 m.	5,425	34.39%
Unidentified size	Not available	7,357	46.63%
	Total Business Units	15,777	100.00%
Product categories engaging in manufacturing			
Product line	**Description**	**No.**	**%**
Fine jewelry	Gold ornament	4,957	31.42%
	Gemstone jewelry	3,915	24.81%
	Gold and silver jewelry	1,818	11.52%
	Silver jewelry	494	3.13%
Product line	**Description**	**No.**	**%**
	Total fine jewelry	11,184	70.89%
Others	Gemstone/ diamond cutting, Costume jewelry, Pearl, Others	4,593	29.11%
	Total business units	15,777	100.00%

From 2000-2010, the structure of the gems and jewelry industry remained very much the same predominated by small and medium enterprises (SMEs). The Master Plan for Gems and Jewelry is stated (p. 31) that “90% of the gems and jewelry industry production in Thailand are small and medium enterprises (SMEs)” Based on the UTCC summary report above, there are no substantial differences on industry member structure. It is quite interesting to note that there is little development in the industry in terms of the size of the businesses in operation while the number of exports has surged from USD 1,675.10 million in 2000 to USD 11,651.82 million in 2010 referring to the same source of database from the Ministry of Commerce. It is unfortunate that the OIE1 report did not tell how many members were in the industry at the time. It might be possible that there would have been growth in the number of SMEs in this industry otherwise the “big factory sales” must have grown massively blowing this out of proportion. It is reasonable to believe that, it should be the former rather than the latter.

Based on the information, the 96.5% gold ornament for the local market is made up to 31.42% versus 39.47% of the three groups of production for exports. However, the report has not shown the number of workers and sales of each section. It does not mean that the production of the local gold ornament is in any sense bigger or smaller than the production for exports. The line of local and export became blurred coming into terms of the AEC besides there has been an existence of cross border trade on gems and jewelry many years back, perhaps even before the times of setting up national borders between countries. There are at least two points learned from the UTCC’s research as follows:

1. The main feature of this gems and jewelry industry is a fragmented industry. The majority of the industry member is SMEs whereas the big factory is only 2.41% or comprised of 380 factories.

2. Production of fine jewelry is the largest section on the categories of product line as high as 70.89% or 11,184 from 15,777 members.

It is necessary to learn the nature of the business activity in conjunction with the industry development, particularly the evolution of the industry. This missing jigsaw piece is crucial to fill in the whole picture of the macro-analysis at least to answer the question as to why this industry remains fragmented. Structurally,

the fragmented industry is having merit in its own ways specifically the structure is dynamic and adaptive to changes with high spirit of entrepreneurship. Of course, its pitfall comes with fund constraints and limited knowledge development. This notion might be a guideline for its future development.

The emergence of government policies

It should be clear by now that government intervention simply becomes the driving force of the fragmented gems and jewelry industry in the absence of an industry leader to lead the direction of industry development. Government intervention through its policy implementation is one of the most effective tools that all nations around the world administering their economy. Government is the most powerful institution in one nation having resources, e.g., fiscal policy and legitimate power to exercise through the legislation processes and effective procedures, e.g., lawmaking and enforcement by the subtle network of the bureaucratic organs governing subjects under its sovereignty. The government policy implementation will undoubtedly have a substantial impact to the industry and the nation by large. However, government intervention is imperatively restraint by international agreements, legal framework and situation of political economy at the times.

In addition, the government directive policy is not the only industry driving force. As a matter of fact, there are various external factors that influence the direction of the industry development, such as the situation of world economy, new technology, market evolution, and the degree of country competition. Above all, the most important factor of all is really the people in the Thai gems and jewelry industry and their properties and capabilities. It is equivalently true that government policy by its purpose means to benefit the government and the country ideally. Nevertheless, this does not imply that the country, the government and the industry interests are always interlocking and thus aligned to the same direction. In essence, success or failure of the policy implementation is very much depending upon collaboration of the private sector responding such a plan binding with immediate and long-term benefits that may gain from either the public or the private sectors. With reference to The Analysis of Strategies for Developing Thai Gems and Jewelry Industry by

Duangpastra (2012) provided policy summary of both public and private sector are on the next page.

Based on the table, there are 9 government offices and 13 trade associations having their own policies and strategies toward the gems and jewelry industry.
The author commented on his work on page 16 that “Many public and private organizations in Thailand have formulated strategies for developing the Thai gems and jewelry industry but lacked relevant work plans. The promotion and regulation of the industry is under the responsibility of various organizations.” Roughly speaking, it is natural for each organization to have the autonomy to select the best strategy to serve its goals. It is not by coincidence that many government offices happen to plan their strategies of different functions to promote the gems and jewelry industry.
In a view, this is in fact a stream line from the government directive policy to maneuver the bureaucratic organs to foster the industry.

Table 4: Summary of private & public policies to the industry

	การพัฒนาด้านทรัพยากรมนุษย์					การพัฒนาการตลาด				การพัฒนาการผลิต									การเงิน		การปรับกฎระเบียบ			การวิจัยและพัฒนา		
นโยบาย/ประเด็นหลักด้านอัญมณีและเครื่องประดับที่แต่ละหน่วยงานเน้นย้ำในยุทธศาสตร์และการดำเนินงาน	ผลิตบุคลากรระดับอุดมศึกษา	พัฒนาบุคลากรในสถานประกอบการ	จัดตั้งสถาบันการศึกษาเฉพาะด้าน	จัดประกวดนักออกแบบ	พัฒนามาตรฐานฝีมือแรงงาน	พัฒนาตราสินค้า	ขยายตลาดในประเทศ	ขยายตลาดในต่างประเทศ	ยกระดับงานแสดงสินค้า	จัดตั้งศูนย์กลางผลิตและจำหน่าย	พัฒนา OTOP ให้ภูมิปัญญาท้องถิ่น	พัฒนาการออกแบบและการผลิต	ส่งเสริมการลงทุนภายในประเทศ	ส่งเสริมการลงทุนในต่างประเทศและหาวัตถุดิบต่างประเทศ	พัฒนามาตรฐานรับรองและสินค้า	ปรับบทบาทจาก OEM สู่ ODM/OBM	นำ IT มาใช้ในธุรกิจ	พัฒนาเครือข่ายวิสาหกิจ	จัดตั้ง Gem Bank และเข้าถึงแหล่งทุน	การประกันส่งออก	จัดตั้งคณะกรรมการแห่งชาติ	ต่อนคลายกฎระเบียบการค้าและการลงทุน	เร่งใช้ประโยชน์ FTA/AEC	การวิจัยการพัฒนาการออกแบบ	การวิจัยการพัฒนาการตลาด	การวิจัยพัฒนาเครื่องจักรและอุปกรณ์
นโยบายรัฐบาล						/	/	/		/	/	/		/			/	/	/				/	/			
สำนักงานกองทุนสนับสนุนการวิจัย								/			/	/	/	/									/				
กระทรวงอุตสาหกรรม		/			/			/	/	/		/	/	/	/	/			/	/				/	/	/	/
สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ (สกว.)					/	/														/			/	/		/	/
กระทรวงพาณิชย์และ สวอ.		/		/	/	/	/	/	/	/	/	/		/	/	/	/	/	/	/	/			/	/	/	/	
กระทรวงการคลัง																								/				
กระทรวงแรงงาน		/		/	/																			/				
กระทรวงศึกษาธิการ	/		/																									
กระทรวงมหาดไทย			/				/	/		/	/	/			/													
สภาหอการค้าฯ		/	/			/	/	/	/	/				/	/	/				/	/	/	/	/	/	/	/	

Table 4. (Continue)

	การพัฒนาด้านทรัพยากรมนุษย์					การพัฒนาการตลาด						การพัฒนาการผลิต									การเงิน		การปรับกฎระเบียบ		การวิจัยและพัฒนา		
นโยบาย/ประเด็นหลักด้านอัญมณีและเครื่องประดับที่แต่ละหน่วยงานเน้นซ้ำในยุทธศาสตร์และการดำเนินงาน	ผลิตบุคลากรระดับอุดมศึกษา	พัฒนาบุคลากรในสถานประกอบการ	จัดตั้งสถาบันการศึกษาเฉพาะด้าน	จัดประกวดนักออกแบบ	พัฒนามาตรฐานฝีมือแรงงาน	พัฒนาตราสินค้า	ขยายตลาดในประเทศ	ขยายตลาดในต่างประเทศ	ยกระดับงานแสดงสินค้า	จัดตั้งศูนย์กลางผลิตและจำหน่าย	พัฒนา OTOP ให้ภูมิปัญญาท้องถิ่น	พัฒนาการออกแบบและการผลิต	ส่งเสริมการลงทุนภายในประเทศ	ส่งเสริมการลงทุนในต่างประเทศและหาวัตถุดิบต่างประเทศ	พัฒนามาตรฐานรับรองและสินค้า	ปรับบทบาทจาก OEM สู่ ODM/OBM	นำ IT มาใช้ในธุรกิจ	พัฒนาเครือข่ายวิสาหกิจ	จัดตั้ง Gem Bank และเข้าถึงแหล่งทุน	การประกันส่งออก	จัดตั้งคณะกรรมการฯแห่งชาติ	ผ่อนคลายกฎระเบียบการค้าและภาษี	เร่งใช้ประโยชน์ FTA/AEC	การวิจัยการพัฒนาการออกแบบ	การวิจัยการพัฒนาการตลาด	การวิจัยพัฒนาเครื่องจักรและอุปกรณ์
สภาอุตสาหกรรมฯ		/		/				/				/			/								/	/	/	/	
สมาคมผู้ค้าอัญมณีไทย						/		/	/	/		/			/			/		/			/	/			
สมาคมผู้ผลิตอัญมณีฯ								/	/	/		/			/			/	/								
สมาคมค้าทองคำ															/								/				
สมาคมเจียระไนเพชร															/								/				
สมาคมเครื่องถมฯ		/				/	/	/			/	/															
สมาคมเพชรพลอยเงินทอง							/	/	/																		
สมาคมเครื่องประดับเงิน								/	/																		
สมาคมเครื่องประดับแฟชั่น							/	/	/	/																	
สมาคมช่างทองไทย		/			/						/	/			/										/		/
สมาคมผู้ค้าฯจันทบุรี						/		/	/	/					/												
สมาคมผู้ผลิตฯจันทบุรี							/	/						/							/						
รวมหน่วยนับ	1	7	3	3	5	7	8	15	9	9	6	10	3	5	11	3	4	4	7	2	2	9	7	7	5	3

From general observation, the trade associations are playing a supporting role to the government's main policies by asserting their inherent organizational goals to realize that they are representing their members. The official trade delegates on stones trade collaboration with various countries in Africa on the ground of G to G and overseas trade exhibitions subsidized by government funding are the two main strategies initiated by the government office in collaboration with overseas consulate and those local trade associations to persuade their members to participate the fair. The government is really a spearhead of the industry to penetrate overseas markets either for raw material procurement or marketing gems and jewelry. The Bangkok Gems which is now becoming a world exhibition event was organized by the government and passed over to the Thai Gem & Jewelry Traders Association to manage for many years since then. Some associations are more actively interacting with the government than the others due to their well-developed work relationship and network as well as the connection of the head of the association to the government and all level of the bureaucracy.

Generally, the importance of any sub industry institution to the gems and jewelry industry is not counted by the number of policies or strategies each of them develop and stating on their declared statements but rather its active participatory roles and the impact of its policy implementation to the industry. There are outstanding achievements named a few for these trade associations with support from the government to establish a cornerstone of the gems and jewelry industries. The Bangkok Gems & Jewelry Fair has been internationally acclaimed under the Association's supervision standing tall with the Hong Kong Fair counterpart. The successful lobbying to extend the GSP to retain tax privileges for Thai jewelry exporters to the US market on the eve of the great recession in 2007 has upheld the high spirit of public and private cooperation. Lastly, the revamp of the tax collection system to charge VAT on workmanship and setting standard of 96.5% gold ornament were about a milestone of domestic market development. In summary, these accomplishments would not be possible without government support and the consistent effort contributed to the mission by the private sector.

The argument would not be complete without a discussion on the reasons why the government targeted to develop the gems and jewelry industry. The declaration

of its will is loud and clear on the three main polices through its two major ministries of industry and trade. These policies and strategies are National Industrial Development Master Plan 2012-2031-NIDMP by Office of Industrial Economics-OIE, SME Strategic Plan by Office of Small and Medium Enterprises Promotion -SMER and Gems & Jewelry Industry Strategic Development Plan 2014-2017-GITR by The Gem & Jewelry Institute of Thailand (Public Organization) -GIT. The first two offices are under the Ministry of Industry and the last one is under the Ministry of Commerce. These are the policies under scrutiny by this research.

Please note that the notion of industry development was originated from Taksin's Administration dated back to 2002 on the concept of "creating industry competitiveness" based on Porter (1980). The government has done some study to select some industries that the Thais are good at and would offer the prospect of growth for economic contribution to the country. Gems and jewelry industry is chosen to one of the kind. The first complete set of gems and jewelry industry research was Master Plan for Gems and Jewelry Industry (2002)-OIE1 by Chiang Mai University for the Office of Industrial Economics-OIE policy development. The goal of becoming the world center sprung up from this research.

The NIDMP is considered as the yardstick to all policies as it is the genesis of most of the government policies on gems and jewelry industry development policies after its implementation. The focal point of the previous NIDMP is to promote Thailand to become the World Gems & Jewelry Center in 2014 in order to draw major world gems and jewelry entrepreneurs to establish production facilities in Thailand. The current NIDMP, the Gems & Jewelry Industry Strategic Development Plan 2014-2017 is carrying on the same goal. Action Plan for SME Promotion: Gems and Jewelry Industry; and Gems & Jewelry Industry Strategic Development Plan 2014-2017 adopted this goal to their prime objective of vision plan. The key plans of the three papers are to develop the Thailand brand name associated with producing premium quality with a specialized design entity for the medium to high end product rather than the previous plan heavily emphasizing on building up the network and infrastructure. This reflects the change in government policy towards this industry by shifting the policy platform from value added to value creation strategy under the concept of a creative economy proposed by the OIE 3.

As a brief review on the NIDMP, the goal of being the World Gems & Jewelry Center will serve most of the prime government objectives on economic management. The country branding by focusing on design entity and quality production would prevail effectively using and allocating resources; having more foreign direct investment (FDI) will enhance Gross Domestic Growth (GDP) via investment and having higher export income either from gems or jewelry and boosting employment, thus encouraging even income distribution through regions among its citizen; and the international companies would bring with them the advanced proprietary technologies transferring to the Thais. The private sector benefits from this policy mostly to facilitate their operations, such as effective filing processes, tax incentives, stone sourcing, and developing knowledge networks and training. However, these issues needed to be appraised through the policy evaluation. There is no official published paper on this issue assessment yet available so far. It is certainly interesting to learn what the hindrances of the plan implementation, the outcomes and people have to say about the plan on the feedback information.

The NIDMP (Duangpastra, 2012, pp. 34-39) presented to us three main supporting reasons why many government administrations decided to promote this industry and thus demonstrate the original ideal of the plan. Firstly, this gems and jewelry industry has been a top three industry for generating income from export to Thailand in many years that was more than USD 10 billion last year. Secondly, Thailand has a comparative advantage as being a source of gems stones to trade and possessing a number of skilled workers to the industry. And lastly, this industry is labor intensive associated with the prospect of high employment prospect.

In retrospect, the three policies under the supervision of the OIE, SME, and GIT are covering most of the livelihood of the people and their operation within the boundary of the gems and jewelry industry and its sub-industries. Operationally, the NIDMP is providing macro views of how the government plan is governing the light industry while SMEs support the majority of the proprietors who are engaged in the industry and at the same time the GIT provides a knowledge network, technological advice and services to the industry members. These three government offices work hand in hand with the private sector on the part of their concerns and involvement. The main private sector contacts are primarily with the Thai Chamber

of Commerce and Board of Trade of Thailand, the Federation of Thai Industries, Gem & Jewelry Traders Association and Gold Traders Association. To understand these government policies and its implementations, it is important to learn about the research behind these policy formulations. This research will analyze all the research evolved with the three main government policies in the next section.

The research review

The approach to the research review in this section is in three headings covering the objective or the vision, conceptual framework, and methodology & assumptions led to the quests of their strategic recommendations. The analysis of these three dimensions provides separate discussions on each part but interconnecting into the integral parts of their recommendations. The researcher views each of these headings are a continuous research process to reach for strategic recommendations based on the research findings. In principle, this research review is without prejudice based on the assumption that the research design, strategy, and methodology of the five research studies were selected by each of the research teams to the best suit for answering the proposed research questions serving their research objective based on the research assumption. The research review is as follows:

1. **The objective or vision:** The Gems and jewelry industry has been nominated as one of Thailand's strategic industries stated in National Industrial Development Master Plan 2012-2031(NIDMP) by The Office of Industrial Economics, Ministry of Industry. The office has sponsored two prominent public universities to do research for its policy development. The current NIDMP is based on OIE 3 by NIDA. The original objective of promoting Thailand to become the World Gems & Jewelry Center by 2014 was from OIE 1 dated back in 2002. The OIE 2 was an attempt to establish a benchmark to measure and compare the competitive capability of the gems and jewelry industry to the world competitors with recommended strategic path to develop directive policies toward this industry. Together with the two recent researches, SMER and GITR, there are the five comprehensive researches supporting the government strategic plans for the gems and jewelry industry development.

The vision of the World Gems and Jewelry Center has long been established from the previous NIDMP over 10 years carried onto the first set goals of the current

one. The original version reads, “World Gems and Jewelry Center by 2014” synchronizing by the SME’s vision, “Thailand is the world gems and jewelry manufacturing and trading center” and “Thailand becomes the world leading in manufacturing and trading premium gems and jewelry center and secure the sustainable position within 2017” stated in the GIT vision statement (Duangpastra, 2013). This is a forefront objective set by the government sectors for the gems and jewelry industry.

Accordingly, this objective could have been predetermined and streamlined throughout the government sectors being one of the directive policies assigned to government departments to achieve their authority of different functions. Responding to the policy, government department strategic action plans would be compelled to interact by developing in directions of promoting Thailand to become the world center rather than to develop the industry in such a way to benefit all parties in the supply chain which consists of various sub-industries, e.g., mining and refinery of precious metals, precious stones, jewelry making and distribution. By doing so, their strategic recommendations would be narrowly focused onto achieving the stage of being the gems and jewelry world center. As a matter of fact, the world center notion is not only a stage of achievement, but it is also comes with a set of strategies to perform in order to leap to such a stage. The OIE 1, SMER and GITR are the three research studies that stated the world center objective in their vision statement. However, they did not clearly indicate what world center characteristics are necessary at all to set as targets to fulfill but rather broadly tell what to do by stating in the mission statement and supporting their recommended strategies. Essentially, should this goal and thus its strategy be at least reviewed after all of these years in pursuit of the goal? Is this goal still valid after a few rounds of economic shock swept through the world gems and jewelry industry? Would the context of globalization be relevant in any way to the industry development?

It is too early to say if this foregone conclusion is unhealthy, and the overall benefits of the industry would have been lost since there has not yet been an evaluation of the stage of industry development status against those implementing plans in the large scale across the gems and jewelry industry. Moreover, each sub industry which has roles to play in the gems and jewelry industry development has not yet been assessed. The focus of industry development should be placed upon promoting

the supply chain and to explore broad possibilities that the country may gain the most from the alternative scenarios. There might have been other approaches of a productive economy that would subsequently have benefitted the country in terms of effective income distribution, increasing taxation, and sustainable economic growth.

2. The conceptual framework: The research framework is crucial to the final outcome of the study because it provides general points of view of the research and normally dictates the selection of the data enquiry model by the researchers. The mission of the five research studies are about to recommend a strategy for the gems and jewelry industry that evolves with the industry development. The model would enable them to access the industry database through macro-analysis which is critical to this type of research for policy making. Academically, the five researches were strictly following the standard model platform as the research is all about the macro-analysis of the industry. Their selection of data enquiry model was just all the leading models for macro-analysis available in the academic world. The 5-forces model and diamond model were originated from the internationally acclaimed economist. (Porter, 1980) (see Table 5).

Table 5. Summary of the 5 main researchs and their research tools

Research title/ Office in charge/ Researcher name/ and research tools	**Industry study**	**Policy study**	**KSF analysis**	**SWOT analysis**	**5-forces mode**	**Diamond model**	**Pest or pestel**	**Supply chain analysis**	**Others**

Master Plan for Gems and Jewelry Industry, 2002 By Social Research Institute, Chiang Mai University For the Office of Industrial Economics (OIE), Ministry of Industry, "OIE1"									

Table 5. (Continue)

Research title/ Office in charge/ Researcher name/ and research tools	**Industry study**	**Policy study**	**KSF analysis**	**SWOT analysis**	**5-forces mode**	**Diamond model**	**Pest or pestel**	**Supply chain analysis**	**Others**
Development of Comparative Industrial Database Project to enhance the Gems and Jewelry Industry Competitive Advantage, 2010 By Faculty of Economics, Chulalongkorn University for the Office of Industrial Economics (OIE), Ministry of Industry, "OIE2"									

Strategies and Master Plan for Fashion Industry in Creative Economy, 2011 By National Institute of Development Administration for the Office of Industrial Economics (OIE), Ministry of Industry, "OIE3"									

Table 5. (Continue)

Research title/ Office in charge/ Researcher name/ and research tools	**Industry study**	**Policy study**	**KSF analysis**	**SWOT analysis**	**5-forces mode**	**Diamond model**	**Pest or pestel**	**Supply chain analysis**	**Others**
Action Plan for SME Promotion: Gems and Jewelry Industry, 2012 By Thammasat University for the Office of Small and Medium Enterprise Promotion (SME), Ministry of Industry, "SMER"									

2014-2017 Strategy and Action Plan for the Thai Gems and Jewelry Development, 2013By Chula Unisearch, Chulalongkorn University for the Gem and Jewelry Institute of Thailand (Public Organization)-(GIT), Ministry of Commerce, “GITR”									

These two models are effectively describing the relationship of the players in the industry and their interaction to one another. These models assist the researchers to do data mapping in different dimensions. The study shows how the government policies or interventions affect the market demand, supply chain, market competition and production, and vice versa.

All of these researches have been done on the macro-analysis of the industry as well as its composition of sub-industries. The OIE2 has shown a great deal of this quality. The researcher recognizes their careful and prudent scrutiny on factors concerning the industry structurally. However, it is not sufficient to formulate strategy out of the macro-analysis alone. The process needs to account for the micro-analysis on the aspect/characteristics of the nature of the gems and jewelry business and its settings. The objective of doing macro-analysis is to report the total situation and general atmosphere of the industry. It can be used to forecast future tendencies that might take place. However, the macro-analysis does not tell the reasons why such phenomena have happened. It is necessary to learn the nature of the business activity

and settings in the form of micro-analysis to do the explanation. The strategies that place too much emphasis on product design and development striving towards the world fashion trend setters. To develop Thai product distinctiveness from the folk wisdom introduced to the world markets following the Western thinking of a creative economy concept that being successful in the West are named a few results from solely basing strategic development on the macro-analysis findings. Based on the pilot research, the researcher has not found any established links of the macro and micro-analysis on their strategic formulation process as they came to the strategic recommendations. Their strategies came straight from their macro-analysis findings particularly from the Weaknesses of the industry. Their strategy formulation is subjective without taking the nature of business activity into account. All the models were used for the industry macro-analysis on the external and internal factors.

According to Rothaermel (2013), these models from the management school can be grouped up into 2 types under the macro-analysis as follows:

1. External analysis consists of the 5-forces model, Diamond Model and PESTEL. This analysis provides for industry structure and competitive forces to the industry and the strategic group.

2. Internal Analysis consists of the SWOT and Value Chain Analysis. This analysis provides information on the industry resources, capabilities and activities.

Furthermore, the nature of business activity is an important factor to determine the industry critical success factors (CSF). In fact, the nature of business and settings provide the framework for developing competitive capabilities to achieve at the best level of the critical success factors. None of the research has done a full comprehensive study on the nature of business activities and settings. Some of them touched lightly through the value chain analysis. The most outstanding report on the CSF was on the OIE2. The report shows separate sections of the sub industry i.e. diamond, colored gemstones, gold jewelry and silver jewelry. Nevertheless, the critical success factor analysis statements did not explain why these factors are critical to those people in the sub-industries but rather virtually stating what the CSFs are.

Please note that, the main purpose of implementing strategy or in this case referring to government intervention is to enhance competitive capability of the industry to be at its best achieving the highest degree of industry CSF over competitors. In sum, CSF is where the strategies are building around them.

From the researcher's review, the strategic recommendation process of these research studies is straight forward from their findings particularly to respond to the Weaknesses sections from the SWOT analysis. Many strategies were crafted to reinforce industry weaknesses. A trail of strategies focuses on strengthening the Weaknesses is witnessed from the SMER and OIE 3. It is worthwhile to illustrate these points in details. The SMER identified the industry weaknesses for two points out of the nine points as the lack of gemstone product and jewelry design product development and product branding skills as shown on page 60. There were at least two projects that were recommended to cope with the weaknesses, namely: Project to develop design capability for OEM; and Gems Global Trend Project to become the world and regional fashion trend setter listing on the Strategic Move and Quick Win (p. 113)

In addition, the OIE 3 has pointed out one of the weaknesses from its study that, "most (jewelry) products produced in Thailand are OEM (original equipment manufacturer) ordered by overseas customers. (By doing this way,) it does not encourage developing the Thai product distinctiveness and resulting in not creating consumer awareness (fully realized) on the Thai product potentials. (Under this situation,) the Thai product is unable to be traded under the Thai brand name in international markets". Followed by this statement, there are two strategies from this observation. The recommendation began from the strategy 3 stated on page 441 on labor skills development and promoting production specialist to begin with by prescribing to adapting folk wisdom to design Thai stone products and jewelry to become product distinctive and peripherals by this creativity. Then, OIE 3 confirmed this concept of product differentiation strategy on page 443 once again on strategy 5 to build up the industrial infrastructure to drive the industry development whereas one of the ideals was to encourage the gemstones and jewelry design and product development in order to enhance the degree of value creation by adapting folk wisdom and creativity to the product design. This will bring about high value creation to

the Thai economy. It is still in doubt whether the Thai folk wisdom is a ticket to overseas markets. However, the researcher found from reviewing the five researches' recommended strategies that the issue of this product design and development has been over emphasized casting a shadow over the other important operational issues, such as financial, operation and market mechanism. Furthermore, there are a number of factors repeatedly stated on the Weaknesses of the gems and jewelry industry over periods as follows:

1. Lack of qualified designers in the level of international acclaim
2. Lack of production technological development either for software or manufacturing
3. Lack of proper public relations for products
4. Lack of product development and product branding skills

These factors might be simply answerable by referring to the nature of industry itself. The UTCC research shaded us a light on the issue by telling us that the gems and jewelry industry is a fragmented industry consisting of 15,777 proprietors and the majority were SMEs. Big factories haves more than 201 workers and registered capital of more than THB 20 million were only 2.41% or 380 factories. Most of the production units were concentrated in Bangkok and the metropolitan area at 52.98% on page 73. This census was in 2010. Conceptually, the mentioned above weaknesses are strictly embedded in the nature of SMEs due to their budget constraints.

From a general observation of this industry, these SMEs are normally family business oriented. Their capability relies on the ability of family members to perform other than those international companies who move their production base from overseas and are foreign proprietors. SMEs lack the funding to develop those mentioned qualifications by themselves besides they might not be willing to from their operation focus perspective. Factory employees usually find difficulties to develop marketing skills and networks, and vice versa for marketing to handle production work. Based on this evaluation, the strategy should be primarily formulated to tackle the nature of SMEs in order to grow their business and thus be able to improve their capability with the guidance of the government institutions. In fact, to implement several schemes to effectively improve competitive capability of the SMEs of the whole industry would

be very costly otherwise budget constraints would yield little results from such an attempt to mobilize the massive number of SME members.

Once again, it is too subjective to craft a strategy only based on macro-analysis provided by external and internal analysis of the industry without referring directly to the members of the industry who collectively and aggregately constitute the industry competitiveness by participating in their daily operation. With reference to the above observation, the settings of the industry members are also important either to craft strategies or implement them. It is necessary to take the micro-analysis on the nature of the industry business activity and its settings in consideration for strategic formulation.

Based on the researcher's experience, the product design of each market, e.g., France, USA, the UK, Japan, etc. differs to the extent to which it is dictated by their traditions and customs harmonized by the global trends to become a contemporary fashion location. This is in contrast with the NIDMP policy direction No. 5 to "develop country (Thai) distinctiveness capable of designing a product with its own identity in order to become a fashion trend setter" and the SMER on its proposed plan, the Gems Global Trends Project stated in the Action Plan for SME Promotion: Gems and Jewelry Industry to become a trend setter for world and regional jewelry fashion. It would be physically difficult to train a designer who can be a specialist in all world market fashions. As a matter of fact, fashion and design are more than a picture drawing but an aggregate of the whole spectrum of a particular race, socio-economic background, tastes, traditions and art altogether. To understand the market might not be sufficient in so much of being a national belonging to that particular market. There is no wonder that the GITR gave an observation expressed on its research under the industry weaknesses that, "most of the Thai designers develop their product design by copying designs from leading jewelry magazines". This is another example on the product property yet needed to be accounted for the micro-analysis. There might be many more to be addressed through the research study.

There is a point yet to do research further where the GITR stated on its macro-analysis on the external factors by 5-forces model that, "the entry barrier to the gems and jewelry industry is low due to the low investment requirement.

The industry is labor intensive and thus requires less machinery. Then, the economy of scale is relatively less effective". This is in contrast with the OIE 3 statement on its industry weaknesses that, "lack of proper financial support to proprietors to establish businesses. This is due to heavy fund requirements in doing business in this industry". The researcher agreed with the latter and would point out that the GITR statement is simply overlooking the local 96.5% gold ornament production and the machine-made gold chain production units. The former is demanding high gold content work-in-process and the latter is having activity running round the clock 24 hours fabricating chains and accessories by machine. Even though there are a few machine-made chain production units around but this is somewhat proving the validity of the study claim. In addition, the machine-made product is for both local gold chains and doing accessories for export i.e. the chain will go with the pendant as a set for sale. These businesses require heavy investment on capital expenditures for imported machines and tooling as well as gold bars for the work in process.

Furthermore, the UTCC census stated on page 75 that the solid 96.5% gold ornaments made up the majority of the 4,957 production units from a total of 11,184 fine jewelry production units. The GITR might be right in principle that less machinery is less investment requirement. Somehow, funding on gold bars for work-in-process for fine jewelry particularly the high gold content jewelry, diamonds and gemstones should be included on the investment list. Moreover, the value of the rough stone stock for stone cutting factories or cut diamonds and gemstones stock value for those traders are paramount for their daily operation. Since the solid 96.5% gold ornament production unit makes up the majority, it is necessary to include this section into the research study where the five researches did not mention this section is offering a high potential of export to the AEC and specifically the neighboring countries.

To be more elaborate to the issue of stock investment on basic micro-analysis, the fine gemstone jewelry making activity requires high funding to finance the stock inventory and work-in-process operationally. The production time normally takes 8-12 weeks on average depending on the type of the product line. Precious metals such as gold bar, silver granule and precious stone, e.g., diamonds and gemstones are those expensive items to stock for the production besides the precious metals term of payment is cash on delivery. On the top of that, there is also a credit term of payment

granted to the customer. This industry is relying heavily on funding one way or another either the trader or manufacturer has to fund the production and credit terms to the customer.

To sum up these arguments, the strategy should be crafted responding to the four facets of the nature of business activities: market, product, production, and operation. Studying the micro-analysis would help to understand the reasons behind their proposals for government assistance. Strategy crafting is not all about listing the wishing list of the industry members but to manage the limited resources yielding the best results. The information from the micro-analysis would enable the strategists to have coherent views on the industry and thus to craft the strategy precisely and effectively benefiting all.

1. Methodology & assumptions: The review on this section will focus on the three researches at the three universities sponsored by the OIE, Chiang Mai University, Chulalongkorn University and National Institute of Development Administration to conduct the research for the NIDMP formulation. This is proven from their declared objective statements. Indeed, the researcher would not be able to do the review on the other three researches. This is because the OIE 3, SMER and GITR have not stated their methodology and research strategy on their study for reference.

In general, the OIE 1, and OIE 2 attempted to update the industry status; study and analyze the trends of the industry development; and initiate their recommendations. In particular, the OIE 1 had proposed a comprehensive set of strategies to promote the industry while the OIE 2 recommended the direction of industry development. Apparently, the focus of the research was extensively to support its decision to choose interventions that the government would take actions to develop the industry towards its goals. There are some theory deficiencies on the two researches: OIE 1 and OIE 2 specified that their assumptions and findings are academically debatable in many ways to be addressed below:

The OIE research, namely the Master Plan for Gems and Jewelry Industry (Kaosa-ard, 2002) has overstated the local content of the production and value added valuation that, “In 2001, the export value of the industry was 80 billion baht with the value added of around 80 billion baht” on page 32. There are two implications

of this statement. Firstly, the total export value is fully realizable value added and secondly, the measurement valuation is in Thai Baht where pricing for export is mostly nominated in USD. The argument begins with the content of jewelry normally comprised of precious metals and precious stones. Production of the two has never met the demands of the local and export market. Thailand has imported these two kinds of raw materials over the years (see Table 2). Since these two major jewelry contents are mostly imported, it would not be possible that the export value is fully reliable value added. The second argument is going on that the OIE 1 research based its study by currency reference in Thai Baht. This currency reference is problematic as most of the export sales are in USD and in fact the THB has been highly fluctuating since the economic crisis in 1998. Then, high or low export sales do not directly reflect the actual economic performance. The fine jewelry cost depends upon the commodity value, e.g., gold, silver or platinum. It is physically impossible to forecast the commodity value over the years as well as the currency translation. The OIE 1 made a 10 year export income forecast in THB. Indeed, the fluctuation of currency exchange and particularly the gold price are self-evident to well support this argument i.e. the gold price/ oz. range from USD 375 to 1,850 for the last 10 years.

The research has used a complicated mathematical calculation to forecast the future export sales as per its Annex Kor. The research concluded in its vision statement that, “During the next decade, Thailand will expand its export of gems and jewelry. The export expansion is estimated to be not less than an average of 7 per cent per year from 2004 to 2008. At this rate, the value of exports from Thailand will be as high as 125 billion baht”. The researcher checked the export value from the Information & Communication Technology Center, Office of Permanent Secretary, and Ministry of Commerce and found that the exports for that particular year 2008 were 274 Billion baht in correlation with the price of gold per Troy ounce was at USD 800 substantially increased from USD 400 in 2004. The researcher is not certain how these two remarks are linked to the strategic recommendations. More or less, these two points are crucial to the research.

At this point review moves to the OIE 2, Development of Comparative Industrial Database Project to Enhance the Gems and Jewelry Industry Competitive

Advantage in 2010. The OIE 2 research team has plainly classified the gems and jewelry industry segments into 4 groups: diamonds, gemstones, gold jewelry, and silver jewelry. By doing so, the researcher has overlooked the sub-product segment of gold jewelry that each country specializes in. Then, the industry development target building on this assumption would be too large for the Thais to compete in all of the world's gold product sub-segments. There are many types of gold jewelry. Gold jewelry can be high gold content jewelry ornaments that are widely consumed in China and the AEC, the Italian mechanized based metal jewelry, such as Italian chains, gemstones, gold jewelry, etc. Moreover, the diamond industry also has sub-industries of its own. The commercial grade diamond has been well established for more than 100 years in India while Belgium and New York are the world markets to trade. Accordingly, the Indians have very strong support for its diamond jewelry business. The same case applies to China which is the world's major cubic zirconia (CZ) producer. The pile of CZ stock backs up its medium to low end fine jewelry factories. The following kind of similar question may be raised that "Are the colored gemstones really for the Thais as Thailand is one of the major world markets for gemstones?"

Moreover, the researcher questioned whether the research on the section of benchmarking of the Thai jewelry industry compares with its competitors by using Data Envelopment Analysis (DEA) which is generalized from the total population. The research summarized on the survey and response rate that, "From the survey on the gems and jewelry manufacturers, 67 survey forms were returned. 18 forms and 3 factors from Sri Lanka, India and Hong Kong can be used for DEA analysis. (This analysis) used a total of 21 samplings". The OIE 2 based its total population from the number of factories registered with the Department of Industrial Works. There were 675 factories registered at the end of 2008. The research used Cochran's method (1977) to calculate the sample size and indicated at 123 samples. Somehow, the actual number of samples was 21 samplings. It is interesting to note that the source of income of the Thai factories for domestic sales is 74.5% against the export sales at 25.5%. The OIE 2 team has been using these databases to establish the benchmarks by using each of the foreign entities to represent their countries.

The researcher does not agree that the sample size represents the total population, it refers to the study done by the UTCC two years ago in 2010. The total production unit is far more than 15,777 proprietors, whereas the big and medium-sized factories have from 50 to more than 200 workers at 2,995 factories. The sample size of 21 samples is too little to establish a benchmark for the whole industry and one response of each country cannot represent the country of their origin. Accordingly, any strategic recommendations arising from this analysis section would not be appropriate.

The results from research review show that the researcher found many methodological deficiencies from the five research papers the pilot study was based on. Firstly, the predetermined target goals referring to the SMER and GITR following the management school of strategic formulation would narrowed the scope of the recommending strategies for industry development. In fact, the macro-analysis of any researches is basically used as broad indicators and yet there needs to be further study in more detail dually with the micro-analysis in order to formulate the strategies precisely for the industry members' needs. These research reports are insufficient in producing micro-analysis on the gems and jewelry industry to structurally supplement the strategic recommendations. Apparently, this micro-analysis is the most important missing part on the research and there needs to be a search for the objective of this research. This is the second point to be addressed. Lastly, the inefficient database for data analysis and modeling yielded unreliable results. This is revealing on the export turnover forecast and the number of samples for the benchmarking model. To sum up, because of various aspects, there is a need to do a comprehensive study on the gems and jewelry industry.

Conclusion

The study of the industry and government policies is telling that government intervention is very powerful and influential to this fragmented industry. However, there has not been an official published report on the policy evaluation, particularly the NIDMP for policy review. The goal to become the world gems and jewelry center has been pursued for more than a decade. The dominant aspect of the industry general settings is SME predominated. This specific status has persisted at least for the last 10 years. During this period, there have been dramatic impacts from the world economy

triggered by the commodity market turmoil that directly affected the market demand coupling with the skyrocketing costs of production either the precious metals price or the labor cost resulting from the minimum wage hike. These phenomena have affected all of the gems and jewelry industry supply chain. A great deal of operational adaptations is necessary in order to survive this round of the world economic crisis. The five dreadful factors, e.g., major markets slump, local market slowdown, roller coaster price of oil and precious metals, currency turbulence and higher labor costs in comparison with country competitors are having adverse effects immensely to the Thai gems and jewelry industry. From research review by the pilot study, there are some deficiencies in the five research studies that are being used for policy guidelines, particularly on the point of lacking using micro-analysis on the nature of the Thai gems and jewelry business activity and its settings to be a part of strategic formulation with the industry macro-analysis. There is a need to do research on this accord.

CHAPTER 3
RESEARCH METHODOLOGY

Prior to proceeding to a full discussion on this research exercise, it is necessary to examine the research approach and tools employed for the research processes. This chapter essentially covers all the issues of research methodology with reasons behind the decisions for the research design, research strategies, and research method. Once these issues are set forth, the framework of the nature of the Thai gems and jewelry business activities are brought into consideration under the Interview Planning and Data Management Section. Towards the end of this chapter, ethical issues and trustworthiness are discussed as well as the expected outcome.

Research procedures

This section consists of the standard required headings complying with Burapha University's Ph.D. Dissertation Proposal are as follows:

Qualitative research strategy

The researcher has had great interest to study the Thai gems and jewelry industry for many years as it is not only a place to earn a living but it is a place to live for over 20 years. Studying the five research studies was also part of the routine work for developing a business plan to gain insight on the directions of industry development strategy. The researcher found some deficiencies on their assumptions and models that were used for their strategic recommendations referring to the Research Review Section in Chapter 2. This is the point where this research begins. Researchers start a project with certain assumptions about how they will learn and what they will learn during their inquiry (Creswell, 2003, p. 6). This research is in search for the nature of the Thai gems and jewelry business activities providing micro-analysis for competitive capability development. This issue is new while contemporary research is apparently based on their work on macro-analysis findings.

Based on the philosophical framework of constructivism, assumptions identified in these works hold that individuals seek an understanding of the world in which they live and work. They develop subjective meanings of their experiences-

meanings, directed toward certain objects or things. These meanings are varied and multiple, leading the researcher to look for the complexity of views rather than narrowing meanings into a few categories or ideas. The goal of research then, is to rely as much as possible on the participants' views of the situation being studied (Creswell, 2003, p. 8; Crotty, 1998 cited in Creswell, 2003, p. 9) identified several assumptions as below:

1. Qualitative researchers tend to use open-ended questions so that participants can express their views.

2. They (researchers) also make an interpretation of what they find and the interpretation is shaped by the researchers' own experiences and backgrounds.

3. The process of qualitative research is largely inductive with the inquirer generating meaning from the data collected in the field.

The researcher chose qualitative approach do the study under the above assumptions. The researcher planned to have data enquiry from those participants who have extensive experience in the gems and jewelry industry. This database was gathered and interpreted through the researcher's long experience in the industry. Qualitative research also helps to understand a particular, situated phenomenon, such as interpretations of a group of individuals around the meaning of quality of the factors to address when promoting organization change (Swanson and Holton, 1997, p. 93). By the end of the days, findings from the research were used for strategic recommendations from the study.

In general, the researcher selected this qualitative approach as qualitative research is exploratory and useful when the researcher does not know the important variables to examine. Indeed, the factors of the study were unknown and cannot be addressed where it was not suitable to the quantitative research design. Moreover, this type of (qualitative) approach may be needed because the topic is new, the topic has never been addressed with a certain sample or group of people, or existing theories do not apply with the particular sample or group under study (Moore, 1991 cited in Creswell, 2003, p. 22). The five research studies used industry macro-analysis for their strategic formation and some models were not valid as discussed at length in chapter 2. This research explored for holistic views of the interest groups' settings and goals in order to analyze the outcomes to make recommendations for industry development.

The research strategy was phenomenological research that was conducted by studying a small number of subjects through extensive and prolonged engagement to develop patterns and relationship of meaning (Moustakas, 1994 cited in Creswell, 2003, p. 15). The data enquiry processes were primarily from participants who were the heads of trade associations. These people represented their institutions and the sub-industries they belonged to. This group of participants had extensive experiences to be acceptable by their association members and was successful in the trade of their engagements. In fact, these people had sufficient information on their industries at the level of making recommendations to government sectors for industry development (see Table 4).

One may argue that, this research can alternatively be conducted by grounded theory. However, the researcher learned that there were many points of constraints to be addressed on its application. Firstly, there was no central official registration of the people in the industry, even at the associations of each sub-industry. The Thai Gems and Jewelry industries Census Project shows that the unidentified were those household production units who were SMEs by nature (see Table 3). It was physically impossible to stratify the participants into different business activities for data enquiry. As a matter of fact, there was no participant data available to study in order to plan for selecting participants for the interviews. Secondly, the entity of the participants was more complex when took in consideration for their production and operation mix. One factory can produce both gold and silver jewelry as well as selling them locally and exporting them. In effect, there was no clearly defined line of their business activities. It would be skeptical whether the participants through the judgmental sampling were representing the sub-industry groups and thus collectively embodying the industry. Thirdly, each of the participants had different levels of business experience. This may limit their views on the issue, besides most of them were from the factory floor rather than from management. Naturally, this group of participants might have known perhaps what the obstacles to their immediate business needs rather than a broad view of the industry. Lastly, it was too costly to conduct grounded theory that would require at least 30-50 participants for data enquiry. Therefore, phenomenological research strategy was the most applicable approach for this research.

As mentioned, the deficiencies on the five research conceptual frameworks, assumptions and models, the researcher had in fact conducted pilot research by extensively studying the five researches in details with making reference to various contemporary journal articles on the industry in different areas, and in particular the Thai Gems and Jewelry Industries Census Project (2010) by the UTCC and "The Analysis of Strategies for Developing Thai Gems and Jewelry Industry" (2012) by Dr. Chakrit Duangpastra of Chulalongkorn University. Dr. Chakrit was also the head of the research team preparing the Gems & Jewelry Industry Strategic Development Plan 2014-2017 (2013) for The Gem & Jewelry Institute of Thailand (Public Organization), Ministry of Commerce based on his list of credentials given with his seminar on cross-border trade.

Participant and selection

As the problems of identifying the participant entity to whom were representing the sub-industries addressed earlier, there was no neat clear cut defining of the product, market, and production classification to a participant. One may produce gold or silver jewelry for export and the domestic market, by having retail distribution outlets as well as doing wholesaling. In effect, the result of the research might technically be biased due to simply having an overwhelming sampling of participants from the same group of sampling. The researcher had planned to conduct face-to-face in-depth interviews with the management of 6 leading trade associations from different areas of activities within the industry. These people were experienced persons and represented the best benefits of their members collectively. Importantly, these participants embraced knowledge on their sub-industries from the position in the associations requiring them to know and understand the sub-industry conditions, encountered situations and certainly their members' well-being in the nature of their business activities.

Role of the researcher

Qualitative research uses methods that speak to quality, that is, nuances, perceptions, viewpoints, meanings, relationships, stories, and dynamically changing perspectives. Beyond that commonality, qualitative research can differ greatly due to the view point the researcher holds about the nature of reality, the purpose of the research, and the professional discipline of the researcher. (Swanson and Holton,

1997, p. 89). The researcher's values, ethics and perceptions have been molded by more than 20 years of experience in the fine jewelry industry. The industry is not only a subject to study but it offers a profession that the researcher does for a living.

The researcher has continuously worked for only two fine jewelry factories for more than 20 years but that was long enough for the researcher to develop personal traits as being an employee and proprietor. This position might help the researcher to focus quite clearly from perspective of the two positions, especially when recommendations were made which involved areas that needed to render views from difference positions, namely from the employee and the employer point of view. Furthermore, the researcher has lived and worked during a period of economic prosperity and survived through the great economic crisis as well as growing a business of his own afterwards. In retrospect, the researcher has extensive experience in business expansion; downsizing the organization due to debt restructuring; and establishing a new business venture. The researcher possesses a broad knowledge across various functions as well as witnessed changes in the industry through his extensive experience in the industry.

Despite the fact that the researcher was trained in finance by profession and has practiced this from his broad involvement in various facets of business operations, such as international trade and marketing, strategic management, human resources management, management information system, government relations, operations and logistics, etc. The main profession may have some influence to the researcher's views, understanding data and its interpretation based on the researcher's judgments on the issue related to past experiences regardless that the researcher was trying to be objective to the study.

Data collection procedures

The research was conducted based on document review and study, and face-to-face in-depth interviews. The researcher chose the two research methods over other methods, especially the survey. The researcher learned from past experience that the OIE2's survey research was apparently an attempt made without success as well as having a very low response rate. The researcher has observed that people in this industry are mostly factory workers who are not familiar with filling paperwork, specifically a self-completed questionnaire. The interview enabled the researcher to

probe the issue in depth and to clarify the points of doubt in order to establish the core concept of the nature of the industry where quantitative research cannot be done. On top of the issue, the factors to explore were unknown as were the participants who were SMEs at the level of household production units and had not officially registered their entities. Then, the research chose to do interviews with the management of trade associations rather than individual proprietors.

The document review and study covered mainly the five research papers, the NIDMP, and library search for other research on the jewelry industry. The research by document review and study was done in two parts. Firstly, the pilot research was computer-based, with manual searches at the library and book stores. The second part was a macro-analysis on the two levels of the world industry and the local industry addressing the industry conditions and encountered situations derived from the 5 research summaries; and the summary of SWOT analysis across the five research papers to establish the strategic framework. This issue will be discussed in more detail in the Data Analysis Procedures section. The researcher planned to conduct face-to-face in-depth interviews with the management of leading trade associations from different sub-industries. The interviews were based on an open-ended semi-structured interview by the interview guide at their premises.

Interview plan and data management

The interview guide was prepared under the advice of the principal adviser and co-adviser (see Appendix 2). The focus of the interview was on five parts. Firstly, the quests were on the world industry structure and the Thai gems and jewelry industry positioning to the world. This part went in depth probing with an attempt to identify the macro-views of the gems and jewelry industry market structure. Secondly, the data enquiry was on asking questions relating to the SWOT analysis in order to update the Thai industry situation. In general, the first two parts enabled the researcher to use the information to constitute a framework of macro-analysis of the industry. Thirdly, a set of questions was asked on the relationships of the gems industry and the jewelry industry associating with their business activity, and the industry evolution in conjunction with the growing number of SMEs dominating the industry. Their answers revealed some interesting reasons behind the issue on the industry settings and how business was developed. Fourthly, the interviewees were asked how

the gems and jewelry business activities differed from other industries and the relationship of industry member interrelating to one another. Some queries probed on what the strong and weak points of the business to be carefully looked at and how to get the best benefits from this nature of business. The researcher learned from their answers how these characteristics and properties were influencing or even dictating the ways they did business. The subject included the four main aspects of business activities that may affect the ways of doing business and capability development. These business activities and their properties are:

1) Market-distribution channels; marketing and design expertise; service oriented; customer services.

2) Product-research and development (R & D); taste, design; recycling raw materials; product class and investment.

3) Production-procurement; labor and training; control of materials; security; quality control (QC); technology and production techniques.

4) Operations-commodity products; profit margins; and sources of income; high funding on raw materials; trading knowledge and communication skills; mark-up and pressure on pricing; clusters and networks.

Apparently, the third and the fourth parts were to reveal the nature of the gems and jewelry business activities sufficiently to construct the micro-analysis for competitive capability development. Lastly, some questions were asked about their opinions on the direction of the Thai gems and jewelry industry development together with their points to recommend for developing the strategies for the industry. Subsequently, the strategic recommendations were crafted from formulating the suggested strategies based on market structure (Thompson & Strickland, 2001); and the macro and micro views derived from the findings by updating those knowledge networks constructed from the 5 researches comprehensive document studies that were checked and balanced by the participants' suggestions.

Data analysis procedures:

All the interviews were recorded electronically. After acquiring all information needed from the interview, the interview data were transcribed, sorted and arranged into different categories for reference. The data analysis procedure was based on a pre-coding data category concept where data grouping categories were

chiefly derived from the interview guide as detailed of grouping data enquiry as stated above. Conceptually, the interview guide was structurally laying out the main research questions referring to the research objectives and expected information inquired from the interviews by a series of interview questions. Accordingly, the data were arranged under category headings where the researcher did a narrative passage to convey the findings of the analysis. Finally, the data were extracted for the meanings through data interpretation skimming down into themes answerable to the research questions referring to Tubsree's class lecture on qualitative research methodology in 2012. Strategic recommendations were raised from the study where themes were indicated.

The processes of data analysis through reaching for strategic recommendations were achieved from three sources of studies determining the directions of the competitive capability development. Conceptually, this research was comprised of three sets of integral parts of studies analyzed for recommending strategies. These three study facets are:

1. **Strategic fit to specific industry and position:** This concept was adapted from Thompson and Strickland (2001) for tailoring strategy to fit specific industry and company situations. The researcher employed the concept to apply macro-analysis of the world gems and jewelry industry. The concept suggested that a recommended set of strategies was varied depending on the conditions and encountered situations of the industry. The concept defined conditions and situations into nine scenarios: emerging industry for the future, stagnant and declining industry, fragmented industry, mature and slow growth industry, pursuit rapid growth, and so on. The set of recommended strategies was determined from the conditions and situations of the industry provided framework that governed trend and direction of crafting strategies of this research. Please note that these conditions and encountered situations of the Thai gems and jewelry industry were yet to define its position to the world gems and jewelry industry. It is stated in Chapters One and Two that the Thai industry is fragmented based on the document study discovering the industry position which was characteristic of the Thai gems and jewelry industry. However, it was not the world gems and jewelry industry. As a matter of fact, there were two levels of descriptive classification. There was a level of the Thai industry itself which is fragmented as consisting of many SMEs and the other is its position to the world which was yet to examine the five research studies.

2. Micro-analysis on the industry characteristics and business activities: This was the main section of this research which is thoroughly discussed in the Interview Plan and Data Management section. The findings from this micro-analysis may influence the industry development and theoretically supplement the macro-analysis in order to craft the recommended strategies for competitive capability development.

3. Data mapping analysis from the macro-analysis to identify the strategic direction: The researcher compiled the SWOT analysis from the five researches and summarized them into a comprehensive report of Strengths; Weaknesses; Opportunities; and Threats. This report guided the direction of the gems and jewelry industry development as well as identifying the competitive capabilities of the industry. Interesting enough, this report revealed a time series analysis as this report was conducted from 2002 to 2013 where the last 4 research papers: OIE 2, OIE 3, SMER and GITR were conducted annually commencing from 2010 till 2013. The findings from the macro and micro analysis were used to update the compiled SWOT analysis. Consequently, the completed set of SWOT analysis was analyzed once again in the TOWS Matrix in order to identify strategic direction as a path way of government policy guidelines constructing a recommended strategy map for the Thai gems and jewelry industry.

In summary, the Strategic Fit and the Industry Micro-analysis were structurally a backbone of Data Mapping analysis which in turn provided a framework for strategic recommendation by describing the total situation of the industry and suggesting a set of recommended strategies arising from the its settings, industry conditions and encountered situations of the industry. This research conducted the five research studies for a database supplemented by the micro-analysis on the industry to recommend for competitive capabilities development strategies.

Strategies for validating findings

Reliability and generalizability play a minor role in qualitative inquiry. Validity, on the other hand, is seen as a strengths of qualitative research, but it is used to suggest determining whether the findings are accurate from the standpoint of the researcher, the participant, or the reader of an account (Creswell & Miller, 2000 cited in Creswell, 2003, p. 196) There were eight primary strategies suggested by

Creswell for validating findings (Creswell, 2003, p. 196). However, the researcher selected four measurements relevant to this research as below:

1. **Triangulate different data sources of information:** The researcher planned to have interviews with an individual company apart from the trade associations by using the same interview guide and interview time session to do this research to counterbalance the findings with the main research from the trade association database.

2. **Use member-checking to determine the accuracy of the qualitative findings:** The summary of the themes forwarded to the interviewee on the sections of trade associations to get their feedback.

3. **Spend prolonged time in the field:** The researcher has more than 20 years of experience in this industry and sought advice and opinions on the issues with experienced people in the industry in order to enhance the accuracy on the findings.

4. **Use peer debriefing to enhance the accuracy of the account:** The research was advised and reviewed by the co-advisor who is an academic professional in this industry and the researcher also solicited the findings with colleagues who are experienced proprietors in the industry.

Narrative structure

A plan for a qualitative procedure should end with some comments about the narrative that emerges from the data analysis. There are various styles and models used in the writing suggested by Creswell (2003) to be in used on the research, such as varying the use of long, short, and text-embedded quotations; presenting text information in tabular form; using the wording from participants; and intertwining quotations with interpretation.

Anticipated ethical issues

The researcher selected the following measures to safeguard the integrity of the research and to protect the participants' rights as follows:

1. The research was conducted only after having approval from Burapha University.

2. The research title and objectives are clearly identified to the participants.

3. All the records including the tape recordings and paper trails will be kept for 5 years for an audit trail.

4. These documents and materials will be kept confidential at all times.

5. There was no reference of the interviewee's name and address in the research article.

6. All points of reference and quotes on the research documents were provided with full formatted references.

7. Information enquired from one interviewee was not revealed to others under any circumstances.

Expected outcomes

Qualitative analysis involves a continual interplay between theory and analysis (Babbie, 2008, p. 439). The outlook of the research was in descriptive and narrative form extracting data and information from the investigation of all document studies and interviews. The report presented holistic views of the industry settings, business activities skimming down by data mapping into industry micro-analysis and accounts for the available research on the macro-analysis for industry development recommendations.

Conclusion

The research design was qualitative research on a philosophical framework of constructivism as it was suitable to the research in many ways, especially the research topic which was new and the variables were unknown. The researcher sought to find the missing parts from the five temporary researches when there were deficiencies on the framework, assumptions and models based on their macro-analysis being used for strategic recommendations. The gems and jewelry industry micro-analysis was the essence to fill the knowledge gap. The phenomenological research was preferred over the grounded theory for a number of reasons. One of the main reasons was that the participants were complex coming into terms of their product mix, market mix, and operation mix and importantly their official addresses and contact names were not officially available. The research was conducted based on document

review and study; and face-to-face in-depth interviews. Three main issues were covered: the industry settings; business activities; and the participants' views on the industry strategic development. The data interviews were analyzed by pre-coding data categories based on the interview guide. The conclusions and recommendations were drawn from this database analysis. The research validity and trustworthiness were ensured through the strategies set forth of validating findings. The ethical issues were fully observed at all times in order to protect the participants' interests as well as the researcher's integrity.

CHAPTER 4
RESULTS

The main theme of this chapter is to report on the results of the research study and tell how such results were achieved. In particular, how the research processes were conducted on the anonymous participants involved and to what extent the significances of the data represent the industry as set forth by the research methodology prescribed in the Chapter 3. The report sequences present the research design and a wrap-up of how the research was conducted by describing the data entry tools; the participant representation; data collection and management; data analysis and the findings. The findings are in the form of pre-coded categories enriched by the themes of the text-embedded quotations from the participants' wordings and the intertwining quotations where these categories are fully discussed and interpreted in the next chapter.

Research design

This research paradigm is constructivist with a qualitative research design using phenomenological research as the research strategy by open-ended semi-structured interviews by interview guide and document study for the data enquiry method.

Data enquiry tools

There are two important data enquiry instruments employed in this research. The primary sources enquired from the 5 research document studies to construct a time-series information analysis over a 10-year period. This primary source of data was updated by the findings through the interviews. The interview questions were from the interview guide and were prepared in English and translated into Thai to conduct the interviews (see Appendix 2).

Participant representation

Based on the pilot research, the researcher planned to gather information from the main institutions consisting of sub-industries across the Thai gems and jewelry industry value chain (see Figure 1) as are discussed in Chapter 2. The industry members were divided into 4 groups: raw materials, semi-fabricated products, jewelry manufacturing, and channels of distribution which were classified into 7 groups based on their business activities as shown below.

1. Precious metal mining and fabrication
2. Gemstone mining
3. Gemstone treatment, cutting and trading
4. Silver jewelry manufacturers
5. Gold jewelry manufacturers
6. Plain gold jewelry manufacturers
7. Goldsmith shops

The business activities from Nos.1-3 are concerned with raw material procurement and fabrication and Nos. 4-6 are about the different kinds of jewelry making based on the metal content; and the last category is local retailing activities. One may observe that the distribution channel is missing from this business activity list. In fact, all sorts of distribution activities, e.g., export, wholesale, and retail are embedded in the operating activities. For example, gold or silver jewelry producers are normally produced for the export market and the plain gold jewelry manufacturer produces to order from the 5 main Yaowarat gold shops.

The researcher began by seeking advice from industry peers on their views on each of the above mentioned proprietor groups as well as enrolled in a special course organized by the GIT on “Gold Business and Precious Metals Batch #4” from August 2-September 20, 2014 to which the curriculum is under collaboration with Akara Resources Public Company Limited which is the largest gold mine in Thailand, the Gold Trader Association who is the hub of the gold bar and jewelry trading in Thailand by pricing retail gold, and the GIT. There was so much to learn from the course specifically the nature of the gold business and precious metal mining from both the lecturer and the class attendants. There were three points summarized from the class as follows:

1. The gold mining business activity is purely running on the commodity market where the future market is booked for future gold dole production run. The mine is producing dole which is approximate 92.5% gold content bar for export to a gold refinery in Hong Kong. Their profit, if any, is the cost to run the mining against the productivity of dole by the international gold price of the day. Its value-added is simply slim and making very little contribution to the gems and jewelry industry by large where the jewelry maker can purchase gold or silver elsewhere at international bullion prices.

2. The operating activities of the plain gold jewelry manufacturer for local markets and neighboring countries are certainly interesting. They are scattered around Bangkok and concentrated at Wat Tuk which is near Yaowarat where the original goldsmith shops are located. They are producing jewelry for the big name gold shops mainly, and wholesaling by weight to gold shops around Thailand to the second layer of wholesaling in the big cities of each region, such as Kornkaen, Udonthani, and Nakornrachasima in the north east and Hat Yai in the south. Their workmanship is minimal depending on the jewelry style difficulty levels but their main income comes from the percentage of gold loss allowed by the patrons who advance them gold bars for fabrication or swap at the site when picking up the merchandise.

3. Apart from the main Yaowarat goldsmith shops that predominantly have the role of wholesaling both gold bars and gold jewelry, there are more than five hundred goldsmith shops scattered around Thailand in every province and district. Their main business activities and thus source of income is from pawning the gold jewelry together with selling and buying back the old gold jewelry with a discount up to 10% on the price of the day. All the class attendants excepting myself were either gold shop owners or prospects to open goldsmith shops. One of the important courses that they were specifically interested to learn is how to determine whether the piece of gold jewelry is genuine in order to make a decision to do the pawn. A few of the classmates admitted that interest income from the pawn contributed to more than 80% of total income.

In conclusion, all of the above reasons were sufficient to reject the gold mine and precious metals (No. 1), plain gold jewelry manufacturers (No. 6), and goldsmith shops (No. 7) as participants as their activities are not relevant to the gems and jewelry

industry in terms of a part of value chain and their contribution on the value-added was reasonably low due to their nature of business dealing with the commodity substance.

Furthermore, the researcher went to seek advice from peers in the industry on gemstone mining in Thailand and was confirmed that most gemstone mining activity locally is almost depleting the mineral deposits. Now, the gemstone trader is playing a dual role of finding new resources overseas as well as bringing them to do heat treatment prior either to cutting or selling them in rough to the wholesalers who sub-contract out the gem cutting. There remain a few gemstone miners doing mining along the Cambodian and Burmese borders and the former miners have been mostly turned to gemstone trading. This notion is equivalently true as being repetitively confirmed by most of the participants through the interviews. The gemstone mining group (No. 2) is then not relevant to our research.

There were now remaining 3 sampling groups namely, the gemstone treatment, cutting and trading (No. 3); silver jewelry manufacturers (No. 4); and gold jewelry manufacturers (No. 5). The researcher planned to interview 6 participants whom are purposively drawn from the trade association at the national level.
The groups of participants based on business activities was then limited to the 3 groups mentioned with 6 participants. The researcher selected 2 participants from each group to ensure the representation is fairly distributed. The participants properties were basically chief of a trade association or otherwise the top leading proprietor in the field. Their experience in the industry ranged from 25-40 years. The interviews were conducted at the participants' premises by appointments. The properties of the six participants and one industry expert are shown below.

A number of interviews to triangulate the data source with three more interviews were reduced to one interview for two reasons. Firstly, the data and information derived from the first six participants were almost saturated and nicely supplemented by the triangulated interview. Secondly, it is utmost difficult to find such an expert in the field having direct experiences in a setting factory of various countries where he/ she is exposed to many workers of different countries who possess unique personalities, personal traits, and social values of their own reflecting their races and customs. The triangulated interviewee was proven to have exceptional

worldly knowledge including also the Thai gems and jewelry historical development of over a century. With the two reasons combined and supported by the peer briefing, the researcher is confident that the collected database from the field of the seven interviewees was confirmed sufficient for the research.

Table 6. The participant information

Industry type	Respondent code	Trade association	Technical institution	Trade federation
Gemstone	GS1			
Gemstone	GS2			
Silver jewelry	AG1			
Silver Jewelry	AG2			
Gold jewelry	AU1*			
Gold jewelry	AU2			
Industry expert	AU3**			

* Formerly representing many posts in private and public sector

** Possessing extensive experiences in manufacturing having factories set-up in 4 countries

Data collection and management

For data collection, the researcher made appointments by telephone and followed by an introductory letter attached with a copy of the university approval to do the research in order to declare the entity of the researcher sent by prior e-mails. The objectives of the research were briefed on the line and reiterated in person at the interview. Once again, these documents were handed in to the participants upon arrival for the interview with a declaration of their rights to stop the interview anytime at their request. This should not be the case because the interviews were conducted at their premises and they knew their rights too, as this interview might not certainly be their first. Importantly, permission to record the interview was asked and granted with the research's warrant not to reveal the contents to any third party and their names

will be kept confidential and not referenced anywhere in the research, if necessary codes were used as per the above Participant Properties. There was no reward in any form or any sort to offer in exchange for the interview sessions.

Data analysis and findings

The voice recordings were transcribed into 7 separate sets of word files. The seven interview transcriptions in the Thai version were cleaned and grouped based on the pre-coding data category concept allied with the interview guide prescribed as a framework to cover all the industry issues in order to answer the research questions. Any irrelevant material not related to the subjects were screened out and deleted from the transcriptions. In order to prepare for the data grouping into each of the research question categories, the researcher constructed the Grouping Guideline Table as per Appendix 4, by rearranging the original interview guide into sequential themes with reference to the research objectives. Accordingly, coding processes began by grouping the contents of the cleaned transcriptions following the table format. The five main themes of the coded database were prescribed in forms of research questions and sub-questions as shown below:

1. What are the world gems and jewelry market structure and the Thai gems and jewelry industry positioning to the world market?
2. What is the updated situation of the Thai gems and jewelry industry to the world presented in the macro views by the SWOT analysis?
3. What is the nature of the Thai gems and jewelry business activities?
4. How does the nature of the gems and jewelry business activity provide micro-analysis for competitive capability development?
5. What are the participants' strategic recommendations to develop the industry competitive capability?

Each of the transcriptions was coded according to these theme guidelines by highlighting them in different coloreds for each category. Then, the same colored representing the same theme was grouped into new five files tagged by the stated themes. All parts of the new findings were also allocated into each theme relevant to the subjects. Consequently, the themes were expanded to 10 headings to accommodate the new findings apart from the guidelines of the 5 themes as pre-assigned earlier.

The reporting style predominantly used text-embedded quotations from the participants' wording. The coded Thai texts were directly translated into English in separate headings as below:

1. World gems & jewelry market structure

AU1 provided us a framework of how to define the world gems & jewelry market structure that, "we can say Thailand is one of the world important gems & jewelry centers, and Italy, China, Hong Kong and India are centers too. Our Thai center relies on our capability to source gemstones while the Italian market is plain gold or silver jewelry not having gems as a major part; and diamonds go to the Indians proportion in terms of retail value could be assumed for colored gemstones jewelry at 12%; diamonds at 45%; and the rest goes to plain metals jewelry." However, he maintained that, "it is problematic to compare each type of jewelry in dollar nominal value as plain gold jewelry production cost rests heavily on precious metal gold. But the value added is relatively low, around 12-13%. Then, it is advisable to compare by pieces." AG2 gave us his thoughts with this argument that, "the proportion of jewelry from Thailand is reckoned to be more than 30% and 70% might come from others." This point is also made by AU2 that, "diamond jewelry is the most in value, if you look at 10 display counters, 6-7 counters will be gemstone jewelry and 3 of those are from Thailand…since our product identity stands out over Chinese and Indian…Chinese jewelry mostly uses imitation stones, such as cubic zirconia" AU1 moved on the gross term of value added on diamond jewelry in comparison with gemstone jewelry that, "the same rule applies to Indian diamond sales which is certainly high as the diamond value is comparatively high as gold. 80% of production cost goes to diamonds where the value added is 20%."

Diamonds are different than gold as AU3 pointed out that, "labor cost on diamond jewelry is almost meaningless, if you do not have a diamond base to produce diamond jewelry, you will not be price competitive when your diamond cost is more expensive than others. It is likewise that we (Thais) are sitting on a pile of gemstones where we can source varieties of stones at a relatively cheaper price than the other countries." GS2 supported this notion as that, "diamond (prices) are standardized. People look at the certificate to compare the price of the object. Only branding diamond jewelry can call for the price. There are other gemstones in the hands of

skillful merchants who understand quality and pricing which can call for a higher margin than diamonds." He also admitted that, "the value of diamonds and diamond jewelry is the highest trading." AU1 came to the conclusion on the value added to gemstone jewelry that, "the gemstone cost is the lowest in jewelry content categories of plain gold jewelry, diamond jewelry, and gemstone jewelry but gives the highest return at least 45%. This value added is beneficial to our country." AG1 shared the same view, "we classified industry into 4 types: diamonds, gemstones, silver, and synthetics…..our silver jewelry creates jobs and value added to the gems & jewelry industry more than diamonds which are very minimal."

GS2 noted that "diamonds belong to Europe, India and New York." The Indian diamonds concentrate on the commercial grade diamond for the jewelry part. The Indian center is unbeatable on diamond product as AU3 described that, "Indian diamonds or diamond jewelry have a comparative advantage, not only having been around for many years, perhaps over 100 years but also the Indians are site holders for the last 10-20 years together with its 3-D computer graphic design to aid them on making models." These factors help to break through its limitations as AU1 stated, the hindrance of the caste system that "most of the lowest caste is in this industry producing low quality products while the higher caste do better job offers." said that, "Thais are good at gemstone jewelry…80% are silver and 20% are various as the gold price surged. Gemstones are our base and diamonds are India's." He added on the threats of Indian trade that, "Chanthaburi workers are not good at marketing but skillful at finding raw materials and creating value. We fail to the Indians on system procurement by being forced to sell at a 12%-14% discount for cash." It is interesting to note that, the Indians have become a threats to the Thai gems industry in its domestic market while they are building a strong colored gemstone production base at home in Jaipur where their government is supporting the private sector.

GS2 told us the Thai stand is giving rise to our gems & jewelry industry that, "the king of colored stones consists of emeralds belonging to India; the Thais do red rubies at 80-90% and blue sapphires used to be 60-70% and now have become half of that as Sri Lanka has become a source of materials and having skill on the heat treatment technique other than that Thais are the leader." Thailand is standing tall as one of the gems & jewelry centers among those world centers. AG2 compared the Thai

to the Chinese products that, “Chinese silver jewelry is bulky and fancy full with semi-precious stones and synthetics where its raw material competitiveness lies…at present China is a production base for Hong Kong on medium-high and high end gold jewelry followed by India which has better product quality improvement and of course having advantage on marketing skills linked to linguistic skills but Italians are still the leader in terms of designs.” AU2 added on the Chinese competitive capability improvements that, “China remains strong in jewelry made of cubic zirconia as well as low end semi-precious stone by using machine cut. We (Thais) have to buy from China because of pricing reasons.” AU1 concluded that, “we (Thais) are good at 12% all in all of world value…China and India are fighting with us on the medium and medium-low class of gemstone jewelry and Thais must move on to the medium and medium-high end products as our labor cost is higher. Even so, Vietnam and Indonesia are closing in on us but they do not have a gems culture.” AU1 and AU3 proposed that, “Italians have expertise in the mechanics to produce jewelry. They are not in any way involved with the gems industry. They produce plain metal jewelry from precious metals, i.e., gold and silver. We have positioned ourselves with the Italians as technology buyers rather than competing with them which may be another way to go to.”

2. Thai gems and jewelry to the world

The Thai gems & jewelry industry is highly regarded as one of the best gems and jewelry centers in the world. It is anonymously cited by all our respondents as to this position. AU1 said, “we could claim Thailand is one of the world’s best gems & jewelry centers”. They stated the position is two-fold: one is the world gems center and jewelry center is the other. GS1 expressed his confidence on the issue that, “Thailand is definitely the world gems center. Chanthaburi is fully engaged in this industry with around 50,000 proprietors and outpost of around 2-30,000 proprietors.” GS2 confirmed that, “Thailand is the world gems center for colored gemstones excluding diamonds and low grade gemstones.” AG2 explained further that, “being the world gems center is having high traffic of rough stones trading with more varieties of colored gemstones than other countries supported by being one of the world’s jewelry centers where we produce silver jewelry at the highest export value to the world.” AU2 mentioned that, “as being informed by many customers including

Tiffany, everyone wishes to move to Thailand because “you are the center of colored stones” even though we are not a source of raw materials anymore.” AG2, AU2, AU3 and GS1 agreed that Thailand is the world gems center based on rubies and sapphires in this context and they depleted the source in Thailand many years ago. GS1 added that, “the source of raw materials is 95% rough stones come from Africa.” AU3 confined the material sources that, “wherever they mine in the world, 80% of the productivity comes to Thailand.”

AG1 proclaimed that, “Thailand is a center of gems & jewelry specifically the silver jewelry. We have had industry growth of 2 digits over the last ten years by excluding the last 3 years (when the world economic crisis hit)…it yields very high value added to the country due to comprising many production clusters with numerous sub-contractors in the industry.” “Most of the silver jewelry produced in Thailand covers the whole array of synthetic, semi-precious stones, and precious stone set jewelry including minerals, specially marcasite which is posing outstanding identity followed by plain silver jewelry.” said by AG2 where AG1 shares the same ideal situations. AG2 wrapped up that, “China is our competitor. The USA is the world’s biggest market where we outnumbered exports over China but our silver jewelry exports are not much different to China in the world arena.”

3. Gems industry gives rise to the jewelry industry

To ask about the relationship of the gems and the jewelry industry, AU3 confirmed that, “being a gems center assists us to become a world jewelry center.” And AU1 provoked that, “if we lose the position of being a gems center, we may lose our status as a world jewelry center.” The same person added that, “in order to secure a position as a world jewelry center in the long run, we need to maintain and thus hold on to the gems center in our country. There is real versatility for Hong Kong to secure its gems center by being a free port.” AG2 gave us a concrete explanation on the degree of dependability of the two industries that, “I viewed that the status of being a gems center makes us progress one more step towards being a world jewelry center. Our country has been very skillful at gem heat treatment and stone cuttings for a long time throughout our historical development. Our gems industry supports our jewelry industry because it sits next to the supply sources which are cut stones where Chanthaburi brings in rough stones from everywhere in the world to be heated and cut in Thailand.

We can supply the local jewelry industry in numbers and size with relative cheaper price particular the red and blue gems where the others do not have this access. We have very few competitors considering all types of gemstones. China and India do low grade stones and Sri Lanka specializes in only one type of stone"

4. Thai gems & jewelry standpoint to the world industry

From the world perspective in terms of strategic-led growth: China is cost efficient to value jewelry; Italy is for value creation through design development; and Hong Kong is good for value by ensuring customer confidence and being a free port. These are proposed stances by the 5 industry prominences.

AG1: "our standpoint for silver jewelry is one stop shopping. We offer across product lines from very low end selling by weight….to medium and high end with uniqueness of our gemstones setting on the piece. So far, there is no one who can do heat treatment as we do and this is our specialty."

AG2: "our industry stands for quality. I believe our foreign customers trust our product quality over the Chinese and Indians. We agreed on specification with on-time delivery. Honesty is our strong accent than the counterpart nations."

AU1: "our stance is craftsmanship as it is in our DNA combined with our Thai hospitality. We care for our guests which is our strong character. This quality cannot be emulated. Our counterparts lack this quality. The Chinese are too pushy for quantity orders and it is not very sanitary travelling in Mumbai. European customers prefer Thailand"

AU2: "our industry standpoint is tailor-made by order. We are meticulous and service-minded. Thais are flexible to customers' requirements but the Chinese are not. We care about quality"

AU3: "high product quality, on-time delivery and consistent quality supply are the main standpoints of our Thai jewelry. We are willing to help customers even it is not our fault. We are here to serve"

5. Gems & jewelry industry is having long historical development

The Thai gems industry can be dated back to more than a hundred years. AU2 said that, "we were a ruby source and it was the favorite of King Rama the 5^{th}. Rubies were abundant in Kanchanaburi and Chanthaburi through the hands of Thai alchemists to perfect the stone quality that is one of the Thai characteristics, like to bet

on the result where throwing these precious stones onto the fire. This science has been successful and passed down from generation to generation. We would not be able to be a gems center without having gemstones in the first place." GS2 added to the issue that, "there are different kinds of better quality raw materials from overseas coming to mingle with the local sources such as Burmese rubies. At the same time, Thais move to bring in Sri Lanka sapphires to do heat treatment at home. The Sri Lankans did not even know how to do the heat treatment at that time. This is reflected by our Thai spirit of adventurism." AU2 grasped the essence of the Thai knowledge network that, "this know how has been developed throughout time and we are quite strong on this till the Burmese hired Thais to teach them the know-how in Naypyidaw or the Indians hired Thai experts to help them on red stone auctions in Singapore."

AU3 supported this notion that, "commercial grade stones normally come to have heat treatment in Thailand. Thais have long been experienced on heat treatment for over 70-80 years from our grandfathers. We have burned the whole lot of our own stones out of the country that is our experience." Along with this expertise on heat treatment and stone cutting, Thais have developed jewelry making skills. AU3 narrated on the jewelry industry development that, "the Thai jewelry industry originated from the gems industry…Italians came to buy gems from us to set on their mounts and later the US military servicemen bought gems and set onto mounts in order to avoid paying tax as personal belongings. This is perhaps the heyday of the jewelry industry in Thailand."

AU1 proposed that, "though labor wages increased resulting from a decreasing population due to an aging society but Thais can move up to do a higher class of jewelry that pays better." The gems industry is also having the same operational flexibility. GS2 reported that, "there is a labor shortage in Chanthaburi, we have adapted to the situation by producing higher grade gems and moving lower grades to Isan (north east region) instead…..we also use machines to replace labor in case of lower grade gems cutting. Household industry is one of our Chanthaburi models. For example, when my business is off from the fruit season we shift to stone cutting. Staff takes 50 stones home to cut and return for another lot. It is not necessary to set up a factory of thousands of workers. This supply chain network only requires 10 households to do the cutting. This model has been around for over 50 years and is fully developed in our society."

6. Importance of heat treatment and its stage of art

Heat treatment is indispensable to the gems industry. It is a process to enhance gem quality to get rid of any impurities or cushions from the natural process of the stone formation. AU3 explained the processes that, “only 2% of gems extracted from the ground do not required heat treatment. 98% need to go through the process methodically…….we learned from doing while the western produce machine serves us.” There is a cost of learning to do heat treatment. AU3 moved further that, “when we sort gems from a mineral extract lot we separate them into several grades. Some lots give very high yield that only the high grade group has paid for the cost plus some profit. Then, we can do use the lower grade to do heat treatment experiments. The heat treatment is an art to match the temperature degree to each stone lot perfectly. The gem trader could lose the whole rough stone lot when each type of stone and nature of the each lot is very much depending on the sharp eyes of the trader to decide how to do the heat treatment.” Then, AU3 concluded that, “the heat treatment has in effect put Thais in an advantageous position to control gems flow by the heat treatment process and then pass those heat treated to the cutting process which Thais have mastered.” This is the way that Thailand is building up its gems center to the world as gems trade traffic flows into its gems center.

7. Emergence of gemstone monopolistic situation

The gemstones market has long been enjoyed oligopolistic competition. Thais do bilateral trade by bringing in the gems otherwise the locals from the sources of stones bring here to trade in Thailand. There was no big player like De Beers in the diamond industry in the gemstone industry till Gemfields came to the industry. GS2 narrated on the big corporation roles and what it does to the gemstone markets that, “Gemfields is listed on the London stock exchange…it does ruby and emerald auctions. They are experienced people in the mining business having concessions with the Zambia and Mozambique governments for ruby mining by sharing value at 30% with the governments….their total value of stone auctions is more than USD 120 m. since June last year. …..their supply is guaranteed on corporate good governance and consistent quality supply. One way or another, this creation became the main player in the world gems industry and recent development is striving towards product branding like Swarovski on crystal…..in the end, those auction lots came directly or indirectly to Thailand for heat treatment at Chanthaburi.”

8. The industry SWOT analysis

Strengths

1. Responses on the cause of “Thai hospitality” are intense when the question is asked why foreign buyers prefer dealing with Thai manufacturers. AU3 stated that, “Our land is fertile and has plenty of food to share. Thus, Thais are kind and care for guests visiting their homes with a smile.” AG1 and AU1 pointed out that, “Thais are highly flexible to trade and willing to help their business partners. Their business communication dialog is at all times friendly, compromising and supportive to customers. There is less of the rules barred to trade and truly creative engagement."

2. Thai product quality very much reflects our physical settings and our culture. These factors aggregately create a unique Thai workmanship supporting mass production yet requiring highly skilled craftsmanship. AG1 proposed that, “Thais are graceful and detail oriented which runs in our lineage…….directly derived from our body structure naturally with our embedded culture and traditions….these natural traits support quality craftsmanship.” AG2 agreed with this remark and added, “these qualities result in Thais are specialized in craftsmanship on whatever product style supplemented by our honesty with our business counterparts.” AU2 noted also that, “jewelry making requires in-depth know-how apart from skills where Thais muster with the nature of Thais. Our industry strengths is our Thai nature on what we are and no one can take this away from us.” AU3 gave another perspective to consider, “the other Thai quality is outgoing personality which is easily to control and suitable to manage on production lines. Importantly, Thais can do mass production jewelry with standardized product quality of the hand-made pieces.”

3. GS1 gave a different view emphasizing on the Thai adventurism that, “no one dares to risk their money by making investment on heat treatment as what we do now.”

Weaknesses

1. AG2 and AU3 agreed that Thais lack of unity and business collaboration among trade associations even so there is an existence of a trade confederation. The level of collaboration either at the level of association members or among associations is slack. AG2 narrated that, “our industry weaknesses is Thais are not unified to help each other. Do not mention about collective bargaining with

the government since each association is not united and do not formulate requirements. This is also at the level among association members on business fraternity. There is no customer information exchange and credit line like the Hong Kong counterparts. Our industry lacks trust otherwise "being accepted" as a leader by the government to represent us to negotiate with the government. This stirring situation has arisen from conflicts with a few big companies and their differences are not yet reconciled." AU3 pointed out this might be structural problem rather than cyclical, "the reasons why people in the industry do not genuinely assist one another or reveal confronting business problems to others following the fashion of the western society is because of our historical development. Jewelry factories are mainly an extension of forward integration from gems trader or cutting. These people are by nature over-confident to what they do. They are special people who have the guts to pay Baht 10 m. to bring home stones and throw them into a 2,000 Celsius oven for 3-4 days with the hope of turning out shinning gems and as the same time a miner accepts a Baht 10 m. check for payment with the hope that it will not bounce. Their problem is to say "big ego" and that is reason why Indians are sieging our Thai gems associations."

2. AG1 pointed out, "the majority of our industry members are small businesses. They lack production technology and management skills. They have grown because of the market expanding without supporting grounds. Unlike the Chinese is having Hong Kong and Europeans to support due to moving their production base to China where they bring with them the technical know-how."

3. AG2 explained how the VAT has affected the gems industry mainly and spilled over to the jewelry industry on the tax issue that, "We do not have gems in Thailand anymore. The government recognized this problem then waived all tax involved with gems 20 years ago. Rough gems and diamonds flew into Thailand building up our gems base to what we are today. Even diamond factories were cropping up. Then, there is a verse of VAT implementation. The flow of stones has been drawn back and we have to go out to find more raw materials. Many countries, such as South Africa and Vietnam have been trying to protect their mineral resources by imposing export tax on rubies and sapphires but failed to the market forces. Vietnamese are bringing their lots to trade in Thailand. However, there are many structural obstacles to conduct the trade smoothly…..these gems are not declared

in and exported. The official Thai gems export is currently around USD 7-8 billion which is only 1.5% worldwide because the exports are not declared. If the VAT is waived, the value of exports will instantly increase to USD 15 billion. At present, undeclared stones are a burden to the jewelry industry. Factories need to ask for ID cards from traders to substantiate the stock holding with the tax invoice. Factories are at risk on tax liability." GS2 added that, "this is the reason why Gemfields does auction in Singapore." AG2 cited that, "why we have to bar the inflow of gemstones while we do not have sources of stones anymore domestically."

4. AG1 and AG2 shared their view that, "there are trends of diminishing labor forces to the industry and now the lack of labor problem is chronic."

5. GS1 and GS2 agreed in principle on the lack of institutionalized supply chain connections between the gems and jewelry industry obstructing trade development. GS1 said, "our weaknesses is lacking connectivity between gems and jewelry….Chanthaburi merchants are good at sourcing but not marketing…. the problem of Indians' 12-14% discount for cash needs to be resolved…we need more new traders in the market."

Opportunities

1. Opportunities on production and branding technology transfer are opening up to Thais while more world jewelry players move their production base to Thailand and open up retail shops locally. AG2 explained the reason why Thai export sales have grown in this economic crisis is that, "many multinational companies who are world class brand retailers have moved their production base to Thailand. That is the reason why our export sales jumped….they confirmed the main reasons for their investments were our meticulous craftsmanship and our honesty." AU3 added that, "Pandora moved from China because the labor forces high turnover rate affected quality management ….Swarovski also has the same reason to expand more plant facilities in Ayudhya that closed down in China….Tiffany & Co. which has USD 2 billion in sales moved to Samuthsakorn setting up a plant with 2000 workers on a 30 rai plot of land….these investments happened because of our quality workers who can be trained and controlled…this phenomenon offers us an opportunities to do quality higher-end jewelry" AU1 concluded that, "our opportunities to grow our jewelry industry is to go for medium, medium-high with retail branding capability as so called, forward integration that the government supports."

2. Enhance labor forces to the gems & jewelry industry by free market. AU3 reminded us that, “30 years ago when CZ came to Thailand, peasants can do great at this stone cutting activity. From Sarnagming in Ubonrachatani, Wangnampriew in Chacheungsao, Sena in Ayudhaya, and Suantang in Suphanburi peasants were doing stone cutting at the end of the day. This industry was a household industry where you could bring stones home and doing cutting at home. This operating activity was cost saving helping factories save on production costs. This benefited the jewelry industry on deriving relative cheaper gems costs. This household industry had various levels of skills that helped traders and miners to send out various types and grades of stones to be cut. Their work functions were really having important places in the value chain for the jewelry industry to have varieties of stones coming in terms of type and grade.” This factor reinforced the competitive capabilities of the Thai jewelry industry as well as the gems industry as being world centers of colored gemstones. Sadly to say, the structure has been eroding throughout time by the VAT and withholding tax system….most gems traders went underground both imported rough stones and exported rough or cut stones….we need to be a free port like Hong Kong. Even though it is almost too late but if we were granted so it would help the industry substantially.” AU1 supported that, “our agrarian society offers so much hidden labor forces in the field. It is an ideal situation to do stone cutting at home as side-line work after the rice and farming seasons. It would help to keep people at their homes rather migrating to big cities seeking jobs at factories.”

Threats

1. One of the major threats to the gems and jewelry industry is that the government will or national will is still not focused on the direction to go towards an aging society which we will turn into within 7-8 years and still be stuck in the middle income trap as AU1 expressed concerns. AU1 moved on further that, “whether Thailand can retain the position of a craftsman industry center or not is out of question. Our workforce has become constrained and limited due to an aging society….if we do not specify what we want to do, then our work force will be scattered here and there drifting to an imperative situation of losing potential labor. We have to ask ourselves what Thailand is specialized in because specialization is the name of the game to do jobs for better pay while our population size is shrinking” AU1 offered that,

"the gems & jewelry industry would be able to offer society more than other industries where making value-added of 40-45% and fully utilizing the top labor potentials by doing medium and medium-high types of jewelry other than the electronic which is very marginal."

2. There has been a big wave of market evolution associated with the cyber age. AG1 revealed that, "For the last 10 years, wholesalers have been almost wiped out and retailers who had 5-20 shops came to deal directly with manufacturers at the same time department stores and television networks dealt directly with manufacturers and demanded consigned stock connected on real-time computerized systems. The market evolution gives more bargaining power to buyer playing producers against one another on price competition." AU2 supported this trend that, "it is a moment of truth on this market evolution. Some family businesses that do not accommodate to this market change will lose out and be left behind. Inefficient cost oriented factories will be forced to close down....some companies do not have next of kin to carry on the business, then the business will close particularly stone cutting." Furthermore, some big retailers do backward integration into production base as AU2 shared, "the number of wholesale businesses diminished leaving those big brand retailers in the market while the size of the cake is still the same size. At this turning point some retailers moved to do production otherwise they play the game of competitive price reduction which is a suicidal game. In any case, stone dealers are integrating to do jewelry manufacturing."

3. "Many countries source of gemstones such as Madagascar and Sri Lanka protect their sources by having non-tariff obstacles to trade…while India moved vigilantly into colored gemstones industry with strong support from its government by building up Jaipur as a gems center….this coincided with the market structure change when Gemfields came to do colored gemstone auctions by having some Thais working for Indians to make stone valuations and grading." GS2 raised the points.

9. The gems & jewelry industry settings

Nature of the gems & jewelry business activities

1. AG1 gave us a picture of the gems and jewelry operational activities as that, "the gems & jewelry industry differs from other businesses where we stress on workmanship connecting to machinery and going back and forth more than other

industries which are using one machine to almost complete all the processes. Our product requires quality control for all production stages. The difference from the other industries is our work is graceful and detail oriented for handmade products."

2. "Gemstone cutting is really an SME business done at home. This industry consumes minimal electricity in comparison with other industries. It is genuinely a household industry. You have a spinning wheel using 5 amps for 5-6 work stations. These machines can be installed under the house where the traditional Thai housing style always has space under the house. Peasants can do this after work or in the off season." AU3 shared.

3. Even though the gems & jewelry industry is evolving as labor intensive, but the yield has a high return for either gems or jewelry as GS2 explained, "the margin for a one karat diamond ring might be 10% but colored gemstones may give heaps more margin than diamond with the same design of ring….this alternative stone change is a common side-line in jewelry shops to maintain profitability." AU1 gave his thoughts that, "the jewelry industry is labor intensive but certainly not more than 15% …where in the past it was only 7% (before the minimum 300 Baht daily minimum wage).. our industry differs from others in that we use very expensive raw materials like gold, diamonds and gemstones. There is no big deal about labor costs at 15% even though Vietnam and Indonesia's labor cost is lower than us, let's say 30%... it is 30% of the 15% labor cost. Having said that, we are making quite a high margin in this industry, 5% of uncompetitive labor pricing is not a big deal."

4. AU3 drew us a picture of the gems industry that, "the process of stone cutting is subdivided into many classes where each of the household groups is specialized in a specific kind of stone and grade. This is what market position the trader projects him/herself into. No one does stone buying across grades. Each of the traders establishes their names on what they are specialized in. This of course, applies to the jewelry industry where the factory is specialized in a specific type of jewelry." In my view, this very much depends upon a level of each factory or work group skills at the time since these business activities rely on craftsmanship skills.

5. GS1 pointed out that, "raw materials, specifically gems, are timeless and can be kept as an investment. New lots of material coming in to challenge the gem trader's knowledge on identifying its authenticity and valuation all the time."

6. AU1 speculated that, “the number of 380 big proprietors is coinciding with a number of registered exporters. If it is so, then, those SMEs and households are subcontractors of the former. 380 people are not too bad a number, it does not mean a monopolistic situation since it is fragmented enough. Then, it is the right thing to do is to help these SMEs to have consistent orders from these 380 exporters rather than teaching them to do product development.”

Majority of the industry members are SMEs

1. AG2 remarked that, “SMEs make up the majority of the 85-90% depending on the market situation. However, big companies have higher export figures than the SME but SMEs use bigger labor forces than the big companies ….they take orders from the exporter in Bangkok which are trading companies outsourced for shipment or big companies seeking subcontractors whose product lines are not suitable to their production lines. These people are severely disadvantaged when foreign buyers came to approach them for competitive pricing that undercuts the whole industry during this economic crisis ….the SME becomes SSME size when orders are hard to find in the middle of the world economic crisis…they fight for their survival to do more product niche jewelry classes…this results in Thailand having across the board product classes by these “ant armies” for cash and carry business at Kaosarn, Chareonkrung, and Pratunam. According to the SME settings, we foresee 3 groups of SMEs: subcontracting for exporters; cash and carry market; and direct OEM orders. SMEs are not looking forward to upgrading their operations since it incurs costs and of course Thais do not prefer changes.”

2. AU2 said that, “the origin of SMEs is from the gems business...it is really a household activity after work and then expanding to 20-30 people in a work group where traders distribute rough stones for their cutting work. Some types of stones foregone such as cubic zirconia but rubies and sapphires are still doing so.” AG1 asserted that, “SME in his opinion is 20-30 people workshop or factory. They are family businesses passed on from one generation to another. In the past, they were growing fast due to the market surge.”

3. AU3 shared different view, “these 20-30 people workshops are subcontractors. Those retail jewelry stores do not do their own products anymore. They rely on these subcontractors. They have been working together for a long time

establishing trustworthiness among them. You would not give expensive diamonds to a person you just happen to know. However, the workmanship fee is normally handsome enough as the jewelry mark-up retail price is certainly high. Jubilee is also subcontracting their jewelry out to various factories since Jubilee is the diamond trader for their whole life." AU3 was also given another thought about the origin of these SMEs that, "most subcontractors were factory workers breaking out to set up his/her own workshop to serve his previous factory employers to reduce the factory labor cost. Their pay is based on paying by the piece."

Their business activities are OEM and being a subcontractor

1. AG2 described the industry setting that, "our Thai workmanship is unique from others. We do production to order by OEMs based on customers' designs. Thailand is a center of OEM production and has a few ODMs and OBMs for a few big companies." AG1 supported that, "it is rare and only exclusive to big companies building branded products with foreign partners. Thais are only "hitman", we are OEM people taking orders from big companies as subcontractors. Some subcontractors are financially strong, they can then provide their own precious metal in exchange for better pricing otherwise the big company will provide them the metals…these subcontractors are basically experienced craftsmen from big factories being encouraged to leave work at factories doing work at home and their previous employers give them job orders." AU1 also pointed out the same that, "these small proprietors are breaking from their own factories to work at home. These craftsmen are learning by doing. Some of them went back to their home town and taught their relatives to do the cutting in order to have a support team to do orders derived from factories…this is a very healthy situation of income distribution and retaining locals to work at their home preventing internal migration to work in big cities." GS1gave a different view that, "these small proprietors are perhaps from factories that went bust and the workers come to set up their small businesses."

2. GS2 proposed that, "since they are OEMs, these SMEs then do not do marketing but receive orders from big companies through subcontracting activities…. to create a brand is far-fetched, foreigner are doing these kinds of activities."

3. AU2 repeated that, "those exporters subcontract part of their order to these SMEs backing their orders received from foreign buyers because each jewelry

factory is having a level of their expertise to each specific product. Each part of the order is submitted to a small workshop that specializes in each particular job. The product network is really helping them to fulfill the order. Some companies assemble several pieces from many subcontractors. This is in particular for cut gemstones."

Jewelry design and branding

1. AU3 lectured in range on the branding product concept that, "the real concept of branding is subtle. It is not simply doing design product and putting a name on it. We have to be honest to ourselves whether you see any Thai apparel international acclaim brands at all because jewelry fashion follows the apparel fashion trend…. the key success of selling jewelry nowadays is brand; advances in fashion design; and a relatively competitive price. At this moment, there is no way in the world that I can see our Thai jewelry become world famous. It is extremely difficult to create a brand because Thais are not the mainstream of fashion trend setters in the world….Pandora's key success factor is involving consumers to create and design jewelry. This is really reflecting the character of Danes. Pandora makes jewelry in such ways of collectible items by introducing different kinds of bead collections. Their design is simple and appealing. Pandora issues a seasonal bead collection for consumers to choose from in frequent festive seasons such as the Christmas collection is about all Christmas tree decorations. Consumers can choose which items they want to buy from the whole product range….this changing consumer taste in the kind of economic crisis is threaten Thai traditional jewelry products. But we are confident that the trend will come back since people still want to be different from other people in dressing up and using jewelry…. to cut a long story short, SMEs are not doing their own design brand but the brand retailors do it in their own ways."

2. AU1 evaluated the branding and design concept that, "In gross terms, consumers in a particular country market set the fashion trend which the taste is still western dominant. It is not plausible that Thais draw any designs and manufacture jewelry for westerners to use but in fact we have to ally our design to the ongoing trend in the particular market. It will be useful for the government to help on feeding information on market trends to support the industry to better learn about the market."

3. AU2 pointed out that, “each market has their own taste which is deeply rooted in their customs and traditions. To build up a brand must have the society’s DNA in it. Italian products might be successful in the USA because of sharing European looks but I have never seen any successful Asian brands selling in the USA.” AG2 provoked that, “Thai identity on a piece of jewelry cannot in fact be sold to the world market. Most trends come from the consumer market which is Western societies. Asian style is hardly ever sold apart from Westerner coming to Thailand and buying souvenirs at a weekend or Sunday market…..…Thailand is in the mode of OEMs and very few ODMs. That is why some Thai designers are still copying or using designs from magazines as the main theme of their design.”

Production technology requirements

1. AU3 pointed out that, “it is easily accessible through the internet and craftsmen can learn from other people how to make a piece of work….people who make tools and machinery technology available is Westerners serving what the craftsmen want. In our jewelry industry, the person who gives work to subcontractors will bring with him a production technique to the subcontractors and he might have learned that technique from others. There is a motive to do this technical transfer to have the piece done by the subcontractor as the ways they want the pieces to be.” AU1 added to this notion that, “apart from feeding consistent orders to SMEs, the big companies pass on production technology to them. They have to do this in order to make SMEs become efficient in production. There is no reason to withhold otherwise they will not give the piece to subcontractors in the first place as they want to manufacture themselves.”

2. AU1 foresees Thais as technology users as, “whatever new technology is available, each factory decides whether to buy that derived technology to build on their niches. It is a production secret of each factory. The latest technology in the hands of Thai craftsmen can always extend the usage from their experience.” AG1 maintained that, “technology transfer shall be focused on middle sized factories rather small factories since they can rely on the small ones. However, whether it will be an effective transfer or not depends upon the acceptable credentials of the one that does the technology transfer.”

10. Echoing from the industries

10.1 Recommendations on taxation: All respondents shared the same views of Thailand becoming a trading center on the free port concept. GS2 proposed that, “government policy should be geared toward a trading center direction…. the framework of laws should be similar to Hong Kong’s free port of 100%....this will help our industries substantially. The Hong Kong Fair is 3-4 times bigger than Bangkok Gems Fair with a trading value of more than 10 times. The government should do whatever it can to move in this direction.” AG2 pledged that, “the government should come to rescue on tax issues by following Hong Kong’s free port model and re-categorizing some findings to unfinished products such as chains.” AG1 tried to explained on the issue that, “as we know all the way through that raw material stones have vanished from our country for many years but we still have laws to bar the flow of stones to our country. We should liberalize the tax laws.” The influx of gemstones coming into our country would reduce economic loss as GS1 added that, “they bring the stones to sell for cash. The selling price at the mine and in Chanthaburi is comparable. We do not have to pay for transportation and waste 10 hours on a plane and would take months to pass the miners’ custom procedures as well as ours.” AU1 supported this tax strategy that, “the free port status will draw huge quantities of gemstones to Thailand to secure its position as a gems center…value added will be made through the beautiful hand of craftsmen by heat treatment and gems cutting. The flow of gemstone runs across the country side via the household industry. This is the utmost efficient form of production and encouraging for a self-sufficient economy. Farmers will have a high sideline income that is creating more value added to the economy.” AU2 revealed that, “if the tax framework is similar to Hong Kong, it creates a more dynamic and high potential link to the country of material sources to do auctions right here in Thailand. This would be at some extent to invite Gemfields to do auctions in Thailand. Those auction activities will promote Thailand as a world gems center comparable to those Indian and Chinese counterparts. This status would elevate to next step of setting the colored gemstone standard by using Germany’s cutting technique through a cutting school by the Germans. This would help immensely to promote the growth of the gems industry.”

10.2 Recommendations on government sectors: AG1 and AG2 supported the ideas of integrating government sectors as well as trade associations to become coherent forces truly working for the industry, "we should set up one stop services by selecting one organization to serve all purposes particularly the marketing. We have so many working organs like Federation of Industry, Chamber of Commerce, Board of Trade and many more associations but cannot co-ordinate to move the industry forward…these institutions should agree upon the direction to go forward." AU1 pointed out that, "the gems & jewelry industry sustainable growth is laid on supporting resources usage efficiently specifically the labor forces. The government should set the strategy to promote industries that create the utmost value added to the country. In my view, the food industry, hospitality industries and all the crafts industry are a priority." GS1 recommended, "to cut the vicious circle of the unfair trade commission by encouraging new traders to the Chanthaburi gems market and alter the labor laws preventing foreigners to do gem cutting."

10.3 Recommendations on financials: AG2 pledged to the government for financial aid that, "currently Exim Bank starts reducing the credit limit of customers where it offers credit insurance and both Exim Bank and SME Bank should support exporters through packing credit. This would enable proprietors to become financially stronger."

10.4 Recommendations on marketing: GS1 pledged to the government to aid on establishing a supply chain link between the gems industry and the jewelry industry and encouraging gems trade activities by promoting the Chanthaburi tourism industry through the Department of Foreign Trade. AU2 advised that, "the government should help private the sector to open new markets by sponsoring new potential markets…as the same time running product educational programs that were successful in Japan. This model should be implemented in China to promote Thai gems along with business matching activities….we should do more public relations on the gems that have been less appealing in comparison with foods and tourism."

10.5 Recommendations on technology: AG1 advised the government to follow the Taiwanese model, "to copy the Japanese machine and modify them for local use at relatively cheaper costs supporting the SEMs….It would not be viable for the private sector to do this work and recommend this assignment to King Mongkut

University of Technology….the government should allocate budget towards this exercise for technology transfer."

Conclusion

The research design is a qualitative research type using phenomenological research strategy by open-ended semi-structured interviews based on an interview guide and document study for the data enquiry method. The number of interviewed participants was six with one triangulated interviewee. The interviews were conducted in Thai from the English interview guide translation that was reviewed by the Advisory Committee. Primarily, the pre-coded themes were set at 5 themes with 5 sub-headings referring to the research questions and sub-questions by the Grouping Guideline Table. However, the headings were expanded to 10 where new findings were asserted to the 5 main themes. The research data collection procedures were fully observed and the interviews were carefully conducted by complying with the academic general research rules. The Thai transcription texts were cleaned, grouped and coded then directly translated back to English readily for synthesizing the process of data discussion in the next chapter.

CHAPTER 5
CONCLUSIONS AND DISCUSSION

In this chapter, the researcher reports the analysis of the previous research studies based on the macro-analysis of the world, the Thai gems and jewelry industry and the integration of this study to previous studies. At the same time, the researcher presents the micro-analysis on the gems and jewelry business activity in Thailand. The researcher also provides suggestions and recommendations for the gems and jewelry business for Thailand in Chapter 6. In general, the objectives of this chapter are to establish an analytical framework upon which to prepare the industry macro and micro analysis for research conclusions to make a joint strategic formulation for recommendations on the next chapter. As mentioned, macro analysis is reporting the total situation and general atmosphere of the industry, whereas micro analysis is in the form of studying the nature of business activity and settings and telling the reasons why such phenomena occur. This chapter updates the industry information on macro analysis and reports on the part of the micro analysis that has been discovered from the results presented in the previous chapter. In specific, there are 4 main parts demonstrating the industry analysis in this chapter: Part I-the World Gems and Jewelry market structure and Thai gems and jewelry to the world; Part II-Thai Gems and jewelry industry competitive advantage development; Part III-the Nature of the Thai Gems and Jewelry Business Activities; and Part IV-the Thai Gems and Jewelry industry SWOT Analysis. In principle, this final set of updated SWOT analysis is a typical situational analysis that establishes the foundation for strategic formulation and the positioning analysis that is derived from revealing the industry structure is supplemented with details of the strategic plans. This theme is laid out in the next chapter.

Conceptually, these 4 main parts are signified by the 3 main players in 3 dimensions: the world industry society consisting of industry members from many countries; the Thai industry aggregately with many local gems and jewelry proprietors and; the individual Thai proprietors. It is important to note that it does not make much sense to isolate one player from another in order to study the purposes of

the industry strategic formulation since these players are simultaneously influencing and interacting with each other causing industry changes domestically and internationally. To take a closer look at their existence, these players are a composition of one another, i.e., a group of proprietors is aggregately becoming the local industry and the same industry in various countries constitutes the world society of the industry. However, each of the players has their own views and thus react to particular events and situations differently motivated by their economic self-interest in this free market economy. They could apparently have been chosen either to contest or support the very same situation but in different contexts as far as their ad-hoc interests are concerned. For example, the Italians keep on selling their first-class propriety chain making machines to the Americans which is their major market while producing the chains to export to the US market. This situation has persisted for many years. Be that as it may, market competition is the name of the game geared by profit motivation.

Naturally, the degree of rivalry is getting intense and very competitive when two parties or more regardless of their nationality start producing the same product lines or categories supplied to the same country or even worse to the same customer. In the gems and jewelry business, people are striving towards better quality, good design, faster delivery and competitive prices to serve at its best to their customers. This type of competition happens in every level of business activities ranging from proprietor, country, and region throughout their business live span. On the way round, there could be some occurrence of trade collaboration or support, such as a free trade zone allowed the Thais and Indians to collaborate on flexible raw material arrangements, e.g., diamonds and gemstones, though they are competing in a medium-high class category of fine jewelry in the US market. Particularly, the colored gemstones and gem set jewelry of this type are procured, cut, and manufactured by Indian companies in Thailand. This notion was raised by OIE2 pages 4-9 that, “It is to note that the value of colored gemstones importation to India is quite low. This type of raw materials (colored gemstones) might perhaps procured through (Indian) company network and manufacture gem set jewelry by Indian companies overseas, e.g., Thailand. This results at showing low sales on colored gemstones import and export in India.” This is one of the many forms of complex market competition where

competition sets ground on various product types, product classes, and the country of origin.

In retrospect, it would not be plausible at all to do the industry strategic formation and subsequently recommending the strategy to develop the gems and jewelry industry without aggregately considering the three industry players in various dimensions on the study equation besides the 5 research papers presented to us only the two top tiers of the macro analysis. Therefore, our study is then proposing to specifically cover these four parts. There was a requirement to do document study to establish a ground study of series analysis of the world gems and jewelry industry and the Thai gems and jewelry SWOT analysis based on the 5 research papers. Then, the findings are applied to update and thus confirm the industry situation. These two parts which are in this chapter as Part I and Part IV are an attempt to primarily answer the research sub-question to reveal the foundation of the 5 research macro views as follows:

1. What is the world gems and jewelry market structure? And what is the Thai gems and jewelry industry positioning to the world market?

2. What is the updated situation of the Thai gems and jewelry industry relating to the world presenting the macro views by the SWOT analysis?

As stated above, the researcher conducted a pilot study on the 5 research studies by document review and study in the areas of the two sub-questions set forth. Part I replies to question one above and is organized into 3 sections: Data Study; Data Analysis and; Data Conclusion. Part IV is to prepare a summary of the SWOT analysis from the 5 research studies where the full set of documents can be examined (see Appendix 5). Then, points are stated by the 5 research studies are rationally skimmed down to only those points that are relevant to the current industry positions and prevailing world environment. There is a full explanation provided as to why those points were dropped at the end of each discussion session. Accordingly, the summary report of the two sub-questions is updated by the research findings from chapter 4. Parts II and III are the micro analysis which is introduced where the report contents is straight from the research sources with a full discussion. Generally, the research findings are specifically extracted from chapter 4: the Results which are the purpose of the study. This micro analysis section submits a full report to answer

one of the research sub-questions and research questions below:

1. What are the Thai gems and jewelry industry competitive advantage developments?

2. What is the nature of the Thai gems and jewelry business activity? And how does the nature of business activity provide micro-analysis for competitive capability development?

Answers to these questions are kept in consideration to scrutinize those remaining SWOT factors from the 5 research studies study including the new findings as to whether they are relevant for strategic formulation, if not they will be discarded. Finally, the chapter conclusion is drawn by addressing their relationship of the world market, the Thai industry and the proprietor interactive activities of these institutions at the end of this chapter. This part provides macro and micro analysis of the gems and jewelry industry settings, roles and functions to perform at all levels in consideration by submitting the updated set of Thai industry SWOT analysis supplementing the positioning analysis for formulating the industry strategic recommendations in the next chapter.

Part I: World market structure of Thai gems and jewelry

The world gems and jewelry industry

To learn about the world gems and jewelry industry is chiefly to understand its nature of international business. Generally speaking, the gems and jewelry industry involves all sorts of various raw materials and products as previously described in Chapter 2 (see Figure 1). These material items are found from different corners of the world, being semi-fabricated into intermediary or manufactured finished products in many locations and eventually being sold throughout the world. A quick example presumably stated, rough diamonds from South Africa are cut in Belgium, Israel, Thailand or India and traded in New York. At the same time, Australian gold nuggets are refined domestically and exported to Thailand, Hong Kong, India or China together with the diamonds ordered from the US or procured locally for jewelry making and marketing the jewelry piece in a London retail shop or elsewhere. This is perhaps one of many sourcing routes, production trails and marketing channels in the world gems and jewelry industry that you may find at each junction of trade which are basically

international transactions. Being an international business, the world gems and jewelry industry is fully exposed to the main stream of globalization which is essentially setting mega tendencies that are directing, governing and shaping many industries and the world markets by large. Globalization is playing an important role in the world of trade nowadays. Every industry is constantly influenced and thus abruptly forced to make technological changes, such as the publication industry and book retailing or in some case eventually perished from existence like the film, typewriter and photocopy industries resulting from the globalization process. Is the world gems and jewelry industry in danger like those industries? It is certainly interesting to explore on further discussion.

Globalization is not new creation. It is purely man-made and has been with the world since antiquity. The phenomena of the Silk Road; the New World Discovery and; Western Colonization, the Spice Route and the Opium War are to name a few. There has been an evolution of the processes since then. The inventions of squadron and firearm technology in the last century made possible to build fleets and cannons to conquer the East. The degree of globalization has dramatically accelerated in the last three decades geared by the fast pace of information technology development. One technology has come to replace the others. Communication technology has developed more quickly in the last 30 years than a century before. Photocopy technology has been replaced by scanning and printing technology while the telephone line has been replaced by the satellite. The personal computer has been conquered by the tablet and mobile phone. An outstanding example of the telecommunication industry is the introduction of the internet followed by the massive hit of the social media, e.g., Line, Facebook, WhatsApp, etc. The survival of one industry depends upon how much impact the industry is exposed to and the level of adaptability the industry has to endure with such changes on the one hand and on what the specific industry pertained intrinsic value to its consumers on the other. It is self-evident that globalization has affected our global economy. The world gems and Jewelry industry is not an exception.

There are many versions of the globalization concept whereas scholars attempt to define and to explain the terms in various ways to their audiences. Each of them was given a definition reflecting their school of thought about what they belong

to, e.g., management, laws, sociology and so on. The terminology given by Globalization 101 which is the project of the Suny Levin Institute has given the most likely frame of reference relevant to the stage of analytical discussion here.
The statement from the front web page: http://www.globalization101.org is as follows:

"Globalization is a process of interaction and integration among the people, companies, and governments of different nations, a process driven by international trade investment and aided by information technology. This process has effect on the environment, on culture, on political system, on economic development and prosperity, and human physical well-being in societies around the world"

The statement above does not clearly indicate the positive or negative impact to the global economy resulting from globalization but somehow tells what its effect to the whole political, social, and economic facets of people well-being. Nevertheless, it is too optimistic waiting for the time to come for a change for the good of one nation through the globalization processes without preparing for such changes. Every government should be prepared and take heed of this world phenomenon to readily handle the situation of changes. The world is witnessing the socio-economic change of moving from an agrarian society through industrialization and becoming a service and digital economy by the means of technological development in Western societies. Western societies have learned the lesson the hard way of "no gain no pain" followed by the Far Eastern countries, e.g., Japan and Korea, and the Chinese have been currently well-balancing on this issue for the last decade.

Once again, the fundamental question may be to reply whether the gems and jewelry industry would stand a chance in this whirl pool of chaotic globalization processes and flourish for many centuries to come. Apparently, the globalization has indeed threatened the very existence of the people in the gems and jewelry industry which has been adapting and accommodating to the changing trade environments and competition but not very affected by the intrinsic value and genuine desire to gems and jewelry. Surviving through these critical years, gems and jewelry still have high value perceptions by the general public and retain their body ornaments reflecting their social status as well as collecting as personal wealth. Then, discussion channels to the direction of how globalization affects the industry rather than the consumers' tastes. In a view, there are at least three observations of the world gems and jewelry industry associated with globalization as below:

1. Globalization has created a massive investment flow in the form of foreign direct investment (FDI) promoting trade transactions among trading nations belonging to the groups of free-trade zones as much as the pitfalls when an economic downturn hits member nations, e.g., the Greece crisis to the EU and the global financial markets. The processes encourage a high volume of trade that is gearing to the economic boom and on the way round spreading the bust quickly since they are a connected trade network of each destination market. This free trade practice is moving factors of productions such as raw materials fabrication and production based around the globe where they are produced at its best quality and least costs possible, and marketing gems and jewelry at consumers' markets at a competitive price. The national boundary of product identity becomes blurred in this sense. When the curtain of tariff and tax of an individual country is drawn down, the frontier of competition expands in every dimension from who, what and where to produce and sell their products to where the fund is generating benefits the most. World competition was brought an opportunity to grow sales internationally in the country having bilateral trade agreements. In effect, this economic integration gives rise to the stage of effective product specialization by self-seeking whereas motivating by profit maximization. The Indian colored gemstones cutting facility and the gem set jewelry factory in Thailand are examples. In effect, the gems and jewelry people have enjoyed this high level of internationalization by its nature of trade. In a view, one nation should prudently prepare itself either for the good or the bad arising from emerging trends since every issue always has two sides of the story to tell. At present, the industry muddles through the current economic crisis and wishes the best yet to come for an economic recovery in their major markets.

2. Gems and jewelry is not only the personal wealth of one. They are commodities in terms of investment, particularly gold bars and diamonds since these items can be standardized and have high value perception. The information technology has established effective commodity markets where the world can trade them around the clock for 24 hours. Gold and silver are important factors of production that are tied to other commodity markets, e.g., stocks and bonds, crude oil, and major currency markets. Economic turbulence in the global economy has hit the commodity markets hard. In a 10 year span, the gold price per troy ounce went up from USD 400 in 2005 to reach the highest at USD 1,900 in 2011 and dive down to USD 1,200 in 2015.

Even now, gold and silver prices are still rallying and diving responding to the world economic pulse considering safe haven investments. Many people in the gems and jewelry business have suffered by this price rollercoaster. This situation has changed the face of the jewelry industry in terms of managing investments and commodity options worldwide.

3. The landscape of the world of the gems and jewelry business has been progressively expanding due to the technological development in computer design aids, first class production technology for new products and the new age of distribution channels. These developments structurally cover all facets of the marketing activities. On top of this issue, social media has shrunk the world to people's palms. People from different corners of the world can exchange their ideas to the world and share their customs and traditions in a matter of seconds. Gems and jewelry are products pertaining to customs and traditions where fashions are based. Some nations are good at this type of "exporting cultures" specifically those that are world leaders in world fashion. They exchange their culture and tradition on the runways and catwalks in those capitals of world fashion, e.g., Paris, London, Milan, and New York. This process is called, "passive domination" of western civilization to world consumer tastes. People do not resist but simply appear to be naturally receptive to those world fashion trends to become some or perhaps most of their main stream of national social values coming in terms of promoting ones social status and their wealthiness from wearing these internationally acclaimed branded products. These countries are the new emerging markets with fast growing economies which can afford this "running high taste" particularly countries in the BRUIC and ASEAN.

Prior to having a full discussion on the world gems and jewelry market structure, it is most important to stretch out that globalization may impact consumer tastes but does not do to intrinsic value of the gems and jewelry on the consumers' mind. Please note consumer tastes change from time to time by fashion trends. However, the integrity of the desire for gems and jewelry is still intact over times despite temporarily submerging sometimes by the sway of economic disaster, though public opinion labels gems and jewelry as pompous products. Even at the mid of the economic crisis in the US and EU markets, the industry did not experience an abrupt decline, let's say reduced by half in gems and jewelry consumption due to

the sudden stop in buying. Most of the time, the purchasing pattern becomes a smaller piece of the lower price point and is ordered in smaller shipments instead.

Vividly, the position of the intrinsic value of gems and jewelry in people's minds is well preserved. Consumers, the female patron in particular, still adore the beauty of the sparkling diamond and gems. Seemingly, there is no product replacement for gems and jewelry in the near future. However, other substitute products overpower gems and jewelry remaining strong, especially electronic gadgets. On the operational side, the world gems and jewelry industry is forced to the corner of uncertainty accommodating to the changing world conditions that are caused by the globalization process effects. It is interesting to mention here that the merger and acquisition trends do not appeal so in this industry since this industry is running under the economy of scope. Each of their operating activities is based on their specialization. People in the diamond business would not in any way go across to do gold mining or there would be a few success stories of forward and backward integration in this industry. The most common is backward integration from distribution to do manufacturing in order to secure quality supply sources. Accordingly, the structure of the world gems and jewelry industry is on the verge of progressive transformation.

The most effective way to describe the world gems and jewelry market structure is to study the world gems and jewelry trade sales structure and the top-ten world ranking of countries. From comprehensive study of the 5 research papers in the area of the world's gems and jewelry industry, there is a great deal of information to which each research paper presents to their audiences in various data summaries. Some research such as OIE1 and OIE3 in particular have thoroughly considered the details in each of the sub-industries by presenting their reports by product type and category collectively congregated under the big umbrella of the world's gems and jewelry industry while the other three research studies lightly touch on the issue by citing the total world import-export sales by country in US$ amounts. Their sets of data reports are based on the world import-export database provided by the UN Comtrade as benchmarks to consider the positioning of each country in the world of trade. However, there is no clear linkage to connect and thus explain conclusively how and why those top-ten countries are specialized in those specific areas of trade.

Furthermore, the SMER used world import-export sales as an indicator to identify the industry world leaders and reported what countries were the major Thai markets. The OIE2 cut across by assuming some short-listed countries as Thai gems and jewelry industry competitors and reporting a detailed study of these subjects while the GITR concentrated on the area of the major Thai export markets analyzing by product category. In general, the world import-export figures are simply being used as indictors supporting their justification transacted in terms of USD volume of trade concentrated in particular countries.

It is vital to stress that the industry macro-analysis requires presenting two levels of data analysis: the world industry and the local industry. These two levels of data analysis enable the readers to understand the world industry general ambiance which are the external factors around them and internally analyzing the position where the Thais stand. As a matter of principle, it might not be prudent to formulate industry strategy without considering the surrounding factors and other players together with their strategic moves in the market.

The researcher chose to use OIE3 as the main theme for discussion and support by the other four researches with the reason that the data is the most recent, in 2010, and they are clearly statistical presentations. The data is categorized into 3 clearly defined groups, e.g., gems, jewelry and precious metals where the other research does not. However, there are too many points lacking from the database where these points are addressed on the section of Data Study. Hence, only parts of the import-export data summary of the world gems and jewelry industry are extracted from OIE3 for synthesizing information rather than following through their arguments on the issue.

It is necessary to note that this world import-export figure is not really as straight forward and clean-cut for data interpretation as it looks. The researcher scrutinized the headings of concern of the five researches by document study and presented as 3 sections in this part. The first section is the Data Study which is to establish concept developing on the figure and the Data Analysis follows in the second section to read the figure which supplements the five researches describing the Thai position to the world gems and jewelry industry. Lastly, the Data Conclusion is summarizes the points from the Data Analysis with joint examination to the passage

of the findings from Chapter 4, which are a summary of this part. This part describes what the world gems and jewelry market structure is and at the same time explains the position of the Thai gems and jewelry industry positioning to the world market.

The data study

From the 5 research reviews, the researcher found that OIE1, OIE3, and SMER were doing macro-analysis on the world gems and jewelry import-export sales. Only OIE3 categorized the industrial figure into separate product categories, but the other two studies analyzed based on total import-export figures. However, all of them analyzed the world industry data by keeping the import and export separate without relating them to one another. The OIE2 based their analysis only on selected country samples to compare with the Thai import-export data. The GITR did not provide this part of world industry analysis. Resulting from the study, the researcher made an observation further to the study that it is too lame to make the world industry data analysis based on the US$ sales of the world import-export figures in a separate slot, ranking them by country order and labeling them ‘who’s who’ for major world producers and consumers. There are two reasons supporting this claim as follows:

Firstly, there are many product categories in various price ranges per unit constitutes to be gems and jewelry industry and not all of total world consumption are for jewelry industry. According to OIE3, the gems and jewelry industry was classified into three main products: gems, jewelry, and precious metals. The gems consist of three types of precious stones, e.g., diamonds, colored gemstones, and pearls; and synthetics. Jewelry is comprised fine and costume jewelry. Precious metals are unwrought gold and other articles of precious metals clad. However, the value of world import and export statistics are combined for these products mixes of raw materials, intermediary and finished products. The group of precious metals is an implicit example of this alleged remark (see Tables 7 and Tables 8).

Table 7. Gold demand statistics in tonnes

Tonnes	2013	2014
Jewelry	2,384.60	2,152.90
Technology	408.20	389.00
Electronics	279.10	267.30
Other industrial	92.80	87.50
Dentistry	36.30	34.20
Investment	885.40	904.60
Total bar and coin demand	1,765.40	1,063.60
Physical bar demand	1,385.00	807.80
Official coin	276.60	178.50
Medals/ Imitation coin	103.80	77.40
ETFs & similar products 1	- 880.00	- 159.10
Central bank net purchases	409.30	477.20
Gold demand	4,087.60	3,923.70
% of jewelry to total demand	58.34%	54.87%

Sources: World Gold Council (21-12-015)

http://www.gold.org/supply-and-demand/gold-demand-trends

Note: The report is reformatted basing on the giving database

Table 8. Silver demand statistics in tonnes

		Translation to ton		32,148.40
Tonnes	**2010**	**2011**	**2012**	**2013**
Jewelry	5,928.76	5,704.79	5,642.58	6,183.82
Coins & bars	4,544.55	6,613.08	4,333.03	7,639.57
Silverware	1,636.16	1,496.19	1,387.32	1,555.29
Industrial fabrication	20,007.22	19,434.87	18,324.40	18,246.63
…of which electrical & electronics	8,479.43	8,106.16	7,372.06	7,275.63

Table 8. (Continue)

		Translation to ton		32,148.40
Tonnes	**2010**	**2011**	**2012**	**2013**
…of which brazing alloys & solders	1,885.01	1,941.00	1,875.68	1,941.00
…of which photography	2,140.08	1,919.22	1,692.15	1,567.73
…of which other industrial	7,502.71	7,465.38	7,384.50	7,465.38
Physical demand	32,119.79	33,248.93	29,687.33	33,628.42
% of jewelry to total demand	18.458%	17.158%	19.007%	18.389%

Sources: The Silver Institute ((21-12-015))

https://www.silverinstitute.org/site/supply-demand/

Note: The report is reformatted basing on the giving database

The database of the two tables is from the most powerful organization for the precious metals industry, namely the World Gold Council and the Silver Institute. These organizations are assigned by their members to promote metal world consumption as well as to indirectly regulate the supply of the metals to the market by feeding back information to the miners on the demand volume. These demand statistics are the world consumption each year where they are scored as world import-export data. Therefore, the total import of precious metals cannot be labeled as gems and jewelry industry consumption in so much as the export of these products is not really gems and jewelry industry exports because all of these products are not entirely imported and exported for the industry. As per the tables, the two-year average gold demand was 56% and four-year average silver demand was 18% for jewelry manufacturing. The remaining portions are used in the other industries. This is the same for diamonds that is made to the gems and jewelry industry size. The OIE3 commented on this issue on page 133 that, “At present (in 2009), the gems and jewelry product categories has continuously grew, particularly precious metals which has been in great demand. This results at having high fabrication and export this kind of product. Especially, precious metals product has increased the export growth of the gems and jewelry products”.

This growth might probably be quantity demand from other industries or resulting from commodity speculation but the most crucial factor was that the price of gold evidently surged from USD 800 to USD 1,400/ oz. during 2008-2010 (see Figure 2). Furthermore, precious metals are mostly commodity products priced at world demand and being used for many purposes. Each of them have various tagging price ranges. The price per unit of gold and silver is far more different and nonetheless mentions the diamond price against colored gemstones. To demonstrate the huge price range gap, the price per troy ounce of gold and silver averaged USD 1,200 and USD 16, respectively, in the first quarter of 2015. At this stage, it is clear by now that various types of gems and jewelry are different in value per piece due to the raw materials they are made of. The diamond jewelry which is made of gold is the most expensive in comparison with plain gold jewelry or colored gemstone jewelry made of gold. The price per piece of plain silver or colored gem set silver is at the bottom price range of the jewelry group. The same rule applies to the whole range of the raw materials group where diamonds are the highest priced and semi-precious stones are relatively much cheaper and the synthetics are the cheapest priced. Likewise, the volume of exports from the country predominately producing cut diamonds or diamond set gold jewelry should not be compared with countries that produce mostly colored gemstone jewelry or silver jewelry.

In sum, what type of jewelry one country produces at its world best is very much relying on its comparative advantage and competitive capability established on its local industry foundation providing with given unique vantage status. One competitor country cannot simply seize and thus take lead in any product category overnight. It takes years to become the way they are today and should take time as such to go through comprehensive industry schemes to build up the infrastructure and develop people. Apparently, there are some countries that specialize in each of these product categories. To follow this logic strictly, one may argue that in order to win market share from other countries, one country must successfully produce and sell other product categories where it does not otherwise significantly succeed in expanding product share that it specializes in globally. Indeed, both strategies are too farfetched for one country to carry out and achieve the goal alone. This argument is in contrast with the GITR (p. 66) stated on Opportunities that, “Thailand is having

chance to increase market share in the world market (since its market share is relatively small). Arranging the first notion in perspective, this first proposition leads to the next.

Secondly, the world import and export data shall be jointly considered as are viewed as continuous production processes and distribution. Referring to the example of production trails given early in this chapter, rough diamond and colored stones are raw materials of gems; dole is for gold bar and; gems and precious metals are raw material for jewelry. The world import and export data contains all these production activities into its reports by making remarks that its report does not include “Re-import and Re-export”. This is explained more in the next section. Therefore, one country export becomes an import of the other i.e. Belgium imports rough diamond from South Africa to fabricate cut diamond. There are four aspects of the import-export pattern classified by production and trade activities transcribed to the world import-export record and a pattern keeps no record. These production trails and trading activities are assumed into 5 scenarios as below**:**

1. Mainly export raw materials or intermediary products such as gold and silver dole or bar, rough diamond and rough colored gemstone since it might have a few downstream industries to fabricate or manufacture the finished products, e.g., jewelry. These products are generally from the upstream industry is referred to as “the original sources of materials” (SM).

2. Mainly import manufacturing intermediary products. Their products are cut diamond, heat treatment, and refined 99.99% gold bar. In this production activity group, there is no well-established jewelry industry in their countries which require numerous workers to support the industry. These fabricated products are normally representing the midstream industry is referred to as “the intermediary fabricator” (IF).

3. Mainly import raw materials to fabricate intermediary products, e.g., cut diamond and cut stones in order to use them for manufacturing jewelry locally, e.g., diamond jewelry and colored gemstones jewelry. These group of products covers the midstream and downstream industry is referred to as “fully integrative manufacturer” (IM).

4. Mainly import both intermediary and finished goods for product redistribution via outsourcing and packaging, local consumption and selling to tourists

locally. The point to consider is that this does not have gems and jewelry industry supporting domestically or heavily engaging in trading activities. These group of products is referred to as “product distributors” (PD).

5. Neither import nor export the raw materials and finished goods. Materials are extracted from the ground, fabricated and manufacture jewelry domestically. These products are sold locally to either local consumer or tourist. This activity is referred to as “internal procurement” (IP).

In addition, this does not limit to say that there are only five scenarios as prescribed above. It could possibly be a combination of the production trails and trading activities in complex situations. There might be many joint combinations of their activities i.e. SM + IF + IM + IP in the US pattern. This point is discussed later on this theme. One way or another, these production trails and trade activities reveal the connecting joints of the whole world gems and jewelry production and trade network by their transaction movements from manufacturing to distribution.
This proposition is strongly supported by the direction of Data Analysis emphasizing probing by product category throughout the business activity processes i.e. extract minerals from the ground, fabricate intermediary, manufacture jewelry and export to market destinations. By doing so, this unveils the entity of the country players in the world gems and jewelry industry constituting the world market structure and their positions in the world gems and jewelry industry.

Data analysis:

Despite some earlier given supporting reasons of using the OIE3 database on the world gems and jewelry industry for this research discussion, there is another important notion to add on. The 2009 report period was perhaps an appropriate timing to report the world market situation. The year 2009 is an aftermath of the subprime mortgage crisis in the USA since it began 4 years before. The US market which is the world biggest gems and jewelry industry market was on the verse of recovery. This economic crisis spilled over across Europe and Asia Pacific. In 2009, the European Crisis erupted from public debts in Portugal, Ireland, Greece, and Spain blew out of proportion when it began a year later and persisted till today.

In addition, the other reason to support using the 2009 database is that during the period of 2010-2014, the commodity markets were running at full steam.

The gold price which was one of the major component parts of jewelry went from USD 1,200 in 2010 to the highest at USD 1,900 in 2011 and declined to the same point as it began at USD 1,200 at the end of 2014. This commodity market turmoil has happened to all the commodity items across the board, e.g., silver, platinum, rhodium, crude oil, grain and so on. The crisis has posed negative impact to the industry directly i.e. the hike of raw materials price such as gold, silver, platinum, rhodium and indirectly for example overheads such as power supply and disposable supply prices have increased across the board. The crisis has hampered consumers' purchasing power and crippled the world gems and jewelry industry where subsisting like the other industries surviving through this strong current economic hardship.

Though one may argue that the total demand of gold and silver has stood still based on the Gold and Silver Demand Statistics stated previously. However, these jewelry demands have been in fact under the full influences of the commodity price fluctuation over the period till today referring to the jewelry, bar and coin sections. Since data analysis uniformly based on USD value conversion from quantity demand and the average price of the precious metals of each year, the calculated demand sales of the gold hike at USD 1,900 would not be comparable to gold in various price ranges. The year 2014 might be the best up-to-date information since the commodity prices are settled but there are two main reasons to consider. Firstly, the main world markets, e.g., USA, EU, China and Japan have been under major economic pressure i.e. the last three markets started QE while the first one stopped last quarter. This creates high fund flows over the world that may affect world consumption. Secondly, the crude oil price stood at a high price and dropped by half this year. Importantly, the official 2014 figure is not yet available.

To look back at the world gems and jewelry industry development to the economic and commodity crisis for the past 5 years, there is no major change on the world market and the country player roles in the industry. People in the gems and jewelry sectors are struggling to keep their production and sales flow consistence in this market slump while the precious metals miners have been enjoying the privilege of skyrocketing commodity prices. Every sector in the industry is well put keeping their market positions and roles to perform in the world market. It would be utmost unthinkable to expand production capacity or massively implement marketing activity

in the mid of a world economic crisis where the purchasing power dies down and the product itself is not appealing to encourage consumption in the suppressive atmosphere. The world gems and jewelry has utterly stood still over this 5 year period.

An approach to probe into the heart of the issue in order to identify a group of countries labeling by product categories what they are specialized at is not simply a mathematic comparison on each country's gems and jewelry import-export to others. Unlike the five researches, the concept model of this research is based on joint consideration of the import and export of the same product categories and also cross categories supplemented with the five research findings and the researcher's own experience in the gems and jewelry industry. Please note that there is no such perfect aspect of all countries precisely and neatly falling in the five scenario slots in this complex world. Some countries may have combinations of production and trade activities.

An example of this case is a country having their own resources, e.g., gold and precious stones but still importing partially on the items it lacks. Then, those minerals are processed into intermediary product and jewelry locally for local consumption and the tourist market where some are also for export to the world market. A country that falls in this category has some national resources as well as strong local gems and jewelry industry supporting their business activities. The USA and China are two of these countries. The USA has gold and gems locally as well as being a world gold and diamond trade center with well-equipped metal smelting, heat treatment, and diamond cutting technology to support the midstream industry for its precious metals ornament and diamond jewelry. However, only the most dominant feature will be elected to represent the country. Furthermore, a comparison of the import-export sales among countries in terms of value is well aware of their product categories.

There are three categories of products: precious metal, gems and jewelry making up the world gems and jewelry industry. Each category has an import and export summary totaling to the world record with a report of top ten countries in the world. The figures are in USD and do not include re-imports and re-exports. This implies that the figures are double or triple the transactions which are sent out and received back for many reasons, particularly for those export goods and received

back for repairs and to re-export again. Then, there are two export sales records and one import transaction since Customs does not keep reason records. This remark appears at the bottom of the report as it was on the OIE3 in the first place. Please note that some tables are ranked 11th, the researcher assumes that the OIE3 tried to fit Thailand in position to each of the world records in each of product categories either for import or export i.e. Thailand was 11th for imports and 9th for exports of precious metals.

Of the total figure, the export sales were slightly higher than imports. The researcher observed that these two types of sales were not equal as there are at least four reasons behind the variances. Firstly, this is the effect from the nature of not including re-imports and re-exports. Secondly, each export transaction was normally including add-on profit margins on top of shipment costs. Thirdly, the precious metals and fine jewelry are based on world commodity prices which fluctuate every minute of trading hours. Lastly, some export shipments were from cumulative stocks in the country that are to re-cycle and being sent out to refine, e.g., scrap gold to 99.99% gold bar. Indeed, these points should be taken in precaution on data analysis.

At first glance on the world precious metals exports, there were only 7 out of 10 countries is the SM. The USA, South Africa and Australia are gold sources; Germany, Peru, Mexico, the USA and Australia are silver producers; and platinum is found in South Africa, Australia and Canada as narrated by OIE3 on page 186. The first three countries ranked 1, 2 and 7 are the world commodity markets which are the USA, Hong Kong and Japan. Thailand is basically not considered as the SM. Every country on the list except Thailand is not on the LBMA Good Delivery List which is the fully licensed gold refinery plants with world production standard production under world class production technology. Thailand is neither the SM nor on the world accepted LBMA Good Delivery List. Surprisingly, Thailand was 9th on the world list of exports with a value of USD 5,772 million. Referring to the Information & Communication Technology Center of the Thai Ministry of Commerce, these items are unwrought gold consisting of the dole from the gold shops smelting gold jewelry and from the local gold mine, Akara Resources Plc., which its BOI license is restricted to produce for export only. The mining company executive gave a lecture to the class organized by GIT which the researcher attended.

These doles are basically sold to bullion banks and gold refinery plants. These doles are refined to 99.99% gold bar that complies with London Bullion Market Association (LBMA) which can be traded worldwide. Please note that Thailand has a few gold refinery plants at the level of world class technology but are not qualified to be LBMA registered. For further data on the LBMA Good Delivery List, there are a number of qualified countries on the LBMA website.

Table 9. The world 2009 major country import-export gems and jewelry categories

The world precious metals import				**The world precious metals export**			
No.	**Country**	**Million USD**	**%**	**No.**	**Country**	**Million USD**	**%**
1	India	26,599	20.78	1	USA	22,434	15.00
2	USA	16,485	12.88	2	Hong Kong	13,333	8.92
3	Germany	9,396	7.34	3	Australia	12,083	8.08
4	Hong Kong	8,809	6.88	4	Canada	8,613	5.76
5	Australia	7,514	5.87	5	Germany	7,428	4.97
6	Canada	7,142	5.58	6	South Africa	7,086	4.74
7	Switzerland	6,498	5.08	7	Japan	7,042	4.71
8	UK	5,757	4.50	8	Peru	6,978	4.67
9	Japan	5,709	4.46	9	Thailand	5,772	3.86
10	Italy	5,496	4.29	10	Mexico	5,558	3.72
11	Thailand	4,376	3.42				
	World top 10	103,781	81.08		World top 10	96,327	64.43
	All countries	127,981	100.00		All countries	149,515	100.00

Table 9. (Continue)

The world gems import				The world gems export			
No.	**Country**	**Million USD**	**%**	**No.**	**Country**	**Million USD**	**%**
1	India	15,461	20.86	1	India	16,987	21.79
2	USA	13,657	18.43	2	Israel	11,658	14.95
3	Hong Kong	11,427	15.42	3	Belgium	11,104	14.24
4	Belgium	10,093	13.62	4	USA	10,568	13.55
5	UK	5,706	7.70	5	Hong Kong	9,062	11.62
6	Israel	5,344	7.21	6	UK	5,687	7.29
7	China	2,865	3.87	7	Switzerland	1,817	2.33
8	Switzerland	2,119	2.86	8	China	1,790	2.30
9	Japan	1,092	1.47	9	Canada	1,731	2.22
10	Thailand	1,073	1.45	10	South Africa	1,310	1.68
				11	Thailand	1,283	1.65
	World top 10	68,837	92.89		World top 10	72,997	93.62
	All countries	74,113	100.00		All countries	77,976	100.00
The world jewelry import				**The world jewelry export**			
No.	**Country**	**Million USD**	**%**	**No.**	**Country**	**Million USD**	**%**
1	USA	7,050	20.29	1	India	10,780	20.77
2	Hong Kong	4,276	12.31	2	USA	5,412	10.43
3	Switzerland	4,141	11.92	3	Italy	4,617	8.90
4	UK	3,352	9.65	4	Hong Kong	4,417	8.51
5	France	1,852	5.33	5	Switzerland	4,039	7.78
6	Singapore	1,805	5.20	6	UK	3,535	6.81
7	Germany	1,396	4.02	7	China	3,534	6.81

Table 9. (Continue)

The world jewelry import				The world jewelry export			
No.	**Country**	**Million USD**	**%**	**No.**	**Country**	**Million USD**	**%**
8	Japan	1,343	3.87	8	Thailand	2,705	5.21
9	Italy	986	2.84	9	France	1,783	3.43
10	Canada	809	2.33	10	Singapore	1,636	3.15
11	Thailand	527	1.52				
	World top 10	27,537	79.28		World top 10	42,458	81.80
	All countries	34,742	100.00		All countries	51,895	100.00

Sources: UN Comtrade transcribed from OIE3 (21-1-2015, p. 188, 190)

Remark: Data does not include re-import and re-export

On the world precious metals import, the 11 countries listed add up to 81.08% of world imports. Most of the countries import for re-fabrication refinery and export. Some import gold bars to keep for orders as being a world commodity center for example, Switzerland and the UK. There are only 2 out of the 11 countries that are not world major sources of precious metals; not a world commodity market center or not on the LBMA Good Delivery List.

Apparently, India is the world largest gold consumer and Thailand is ranked 11th with USD 26,599 million and USD 4,376 million, respectively. Please note that India has been in trouble with a net trade deficit due to the huge import of gold bars for local consumption. The import duty has been levied many times on gold imports in order to discourage such undesirable imports. There are 5 countries that have a strong hold of the jewelry industry backing up their gold purchases. The countries are ranked Nos. 1, 2, 4, 10 and 11 which are India, USA, Hong Kong, Italy and Thailand, respectively.

The total world gems imports and exports are really concentrated in the first 10 countries. The first 10 countries import world gems at 92.89% and 93.62% of world

exports which are shared among 11 countries. The total import and export gems sales consist of three kinds of products: diamond, colored gemstones and synthetics which are in the form of raw materials and cut gems. From the matching countries whose have both import and export activities, 9 countries are matched. The analysis began with countries that do not have neither import nor export pairs to one another. There are two countries appearing on the export list but not of the top ten world importers. This can be assumed as the SM which South Africa and Canada are named as sources of rough diamond finding abundance. On the way round, Japan is ranked 9th for imports but does not have a significant export record that is assumed to be either a consumer market or the PD as it has a strong position as one of the world pearl producing and trading centers.

The OEI1 stated on page 26 that "though Thailand is a country being the world important trading and cutting colored gemstones center but its export sales is very much lower than those countries to whom are the world important diamond trade and cutting center for example Belgium, Israel, USA and India." This is supported by OIE3 that Israel, Belgium, the USA, Australia, Russia, South Africa, Canada, and a number of African countries are important world diamond sources. The OIE2 pushed the issue forward on pages 4-8 and 4-9 that, "there are thousand billion US dollar worth of rough and cut diamond gone through India making it becomes the world biggest exporter in small diamond categories…India imports diamond from Belgium, Israel, USA, UAE, Hong Kong." It is interesting to note that OIE1 on page 33 and GITR on page 9 both stated the same position for Thailand's diamond cutting industry, "Thailand is a source of small diamond (diameter from 1.5 mm. to 1 karat) cutting facilities on the 5th world ranking from Belgium, Israel, India and USA." The two research periods are 11 years apart. Thailand might perhaps hold such a position over that period. Hong Kong, the UK and Switzerland are those PD countries mostly dealing with diamond trading. Hong Kong and China are considered as a one partner entity as Hong Kong has moved its gems and jewelry industry to China to serve as its production base as well marketing the produces. The Chinese demand for diamonds has reached a high level since it opened up its country to the world. Chinese imports diamonds from Belgium, South Africa, Switzerland and India for either cutting or making jewelry. There are 5 world jewelry producers showing on the gems import-

export list, those countries are India, the USA, Hong Kong, China and Thailand.

The last section of the world gems and jewelry industry is the jewelry section which is the smallest section at USD 51.89 billion where the precious metals and gems are USD 149.51 billion and USD 77.97 billion, respectively. In order to analyze the figure, the researcher used the same technique to match the imports and exports, and found that Canada, Germany and Japan are consumer markets which do not have a position in the top 10 exporters, and India and China are two exporters who are not top ten jewelry importers. This is simply due to their strong import regulations barred jewelry imports on one hand and they are world jewelry producers on the other. There are 4 countries assuming the world important jewelry producers where their portion of imports is very little in comparison with their export sales, with Hong Kong and China counted as one entity. These countries are ranked 1, 2, 3, 4, 7, and 8 which are India, USA, Italy, Hong Kong, China, and Thailand, respectively. Having said that India and Hong Kong are top 10 exporters and both Italy and Thailand import portions to export is a mere one-fifth. The 5 countries are grouped as consumer markets with a high density of tourist markets and being trading places of the product distributor. These countries are the USA, Switzerland, the UK, France and Singapore. The USA and China are quite unique in their trading and production activities as mentioned earlier at the beginning of this Data Analysis. They are in a combination of all the activities as being the SM+IF+IM and also PD. The researcher dropped the USA from the list of major jewelry producers as the USA has high quality consumers and a tourist market than produces for export. Its import turnover is higher than exports significantly which supports this argument.

Data conclusion:

With reference to the 5 research studies document study, the world gems and jewelry industry is made up of three sub-industries: precious metals; gems; and jewelry. The jewelry industry is the smallest section but contributes the highest margin. World precious metals consumption is not only for making jewelry and a portion of the averages, 55% and 20%, are for the gold and silver jewelry, respectively. If this portion is taken into consideration, the value of germs might be the highest among these three groups. Once again, the researcher does not agree entirely to use monetary terms to determine the size of these sub-industries as the value of each particular

material per unit is varied. The price of gold per ounce is not comparable to a one karat diamond or a ring made of silver. Though they are products in the same sections, e.g., gems and jewelry, they can only be compared to one another in the section of precious metal. The gems consist of diamond, colored gemstones and synthetics while jewelry is gold or silver jewelry set with these three different types of stones. The best way to determine the size of their local industry is to measure by units of their productivity. The number of troy ounces is for the precious metal. Karat is for rough gems and cut gems. The number of jewelry pieces is for those jewelry maker countries. However, this type of database does not exist.

The OIE1 has clarified this myth on page 26 that, "the world gems and jewelry manufacturing and trading is predominately situating at the diamond trading sources since the value of other gems and colored gemstones jewelry production and trading is materially lower than diamond. Most of the world leading countries in gems and jewelry production and trading are those world important trading and cutting centers such as Belgium, USA, Israel, India and Thailand." This finding was in 2002 and the researcher added Hong Kong and China as the world leading candidate. The top five gems exporters are India, Israel, Belgium, the USA, and Hong Kong. Thailand is ranked 11th and Thailand is the center of colored gemstones cutting even though the value per karat is far cheaper than diamond. This corresponds to the world top 10 jewelry manufacturers which are India, USA, Hong Kong, China and Thailand.

The findings from this research study strongly suggest that the midstream industry which is the gems cutting industry is utmost important to uplift and thus support the jewelry manufacturing industry that is the downstream industry of the gems and jewelry industry. Italy is an exception because it is the world's specialist in plain metal jewelry where its precious metal imports are 10th and jewelry export is 3rd as an exporter. The OIE2 stated in its findings on pages 4-2 that, "approximately 15% of world gold value is used in jewelry production processes in Italy mainly for domestic consumption and export to the EU, USA, Japan, Middle East, China, India, Brazil and Russia." The OIE2 maintained this quote on pages 4-5 that, "Italy is the most skillful in machine tool in doing metal mold for stamping and highly effective plating." Italy is the world's source of machine made plain precious metals jewelry and ornaments. This statement also points out that, being the source of precious metals does not give

full competitive advantage to the jewelry industry since precious metals are world standard quality quoted at a world commodity price where the prices differ by the transaction cost. In sum, there is no competitive advantage of being the sources of precious metals to a downstream industry such as the jewelry industry.

Taking a closer look at the world gems industry and the world jewelry industry both industries are labor intensive relying on a large quantity of skilled labor particularly the small diamond and colored gemstone cutting and jewelry making apart from the Italians which is machine-made specifically its world well known as the Italian chain. In sum, the world re-known jewelry manufacturers are India, Hong Kong, China and Thailand. The number of workers in the gems and jewelry industry in these countries is substantial. India is the world leader in commercial grade diamonds and diamond jewelry. In addition, the OIE2 on pages 4-12 said, “Hong Kong gems and jewelry are world cerebrated premium diamond, medium-high and high-end gemstones and jewelry as its high quality design and finished products are comparable to European factories class.” China is an emerging world gems and jewelry industry leader across from gems cutting to producing low, medium, and medium-high diamond and colored gemstone jewelry. Chinese product lines are more similar to the Thai production lines than the Indians’. Thailand is one of the world centers for famous colored gemstones and gemstone jewelry. “From the year 2010 onward, Thailand become the world leading in silver jewelry where its export to world markets outnumbered China and India to constitute Bangkok is the World Capital for Silver Jewelry”, quoted from GITR (Duangpastra, 2013, p. 4). GITR described further (Duangpastra, 2013, p. 11) about Thai exported jewelry that, “(Thai) fine jewelry industry made up to 90% of total jewelry production…….80% of fine jewelry exported from Thailand is gem set jewelry.” Thailand has benefitted from the vantage point of the world colored gemstones center paving the way and settling the foundation of its colored gemstones jewelry industry becoming the world re-known.

Findings

The study of the world import-export figures and the 5 research studies document study stating the country name list of who specializes or is the market in itself of each particular raw material or manufacturing base for a specific type of jewelry and implicitly indicating that the world gems and jewelry industry is

fragmented markets consisting of many players in the market. The research results also suggest the same direction. AU1 supported the notion of world gems and jewelry market structure is fragmented consisting of various product types by giving estimated proportions of their retail price that are 45% diamond, 33% plain precious metals and 12% gemstones specialized by the five world class players, e.g., Hong Kong, China, India, Italy and Thailand. However, AU1 shared the same idea with the above data study conclusion that it is problematic to compare each type of jewelry in dollar nominal value due to their unit prices are far more different i.e. diamond vs. gold or colored gems. AU1, AU2, and AU3 agreed that India specializes in diamond; Hong Kong in high-end gemstones; China in cubic zirconia and low-end colored gemstones; and Thailand in medium to medium-high gemstones. All of them, including GS1, proposed that these countries are also highly specialized and thus are the world leaders to do jewelry sets with those stones belonging to their country's specialty. Apart from Italy doing "plain gold or silver jewelry not having gems as a major part, AU1 added.

AU1 also pointed out that, even though the colored gemstone cost is the lowest in jewelry content categories compared to plain gold and diamond jewelry but it gives the highest return of at least 45% where the former is minimal as diamond prices are standardized and gold is to the international bullion prices of the day. AG2 and AU2 cited that the jewelry of each country has its own signature look. Every participant claimed the same that Thailand is the world gems center in part of colored gemstones particular ruby and sapphire. GS2 gave information that the king of colored stones, the emerald, belongs to India; Thais do red rubies at 80-90% of the world quantity; and the blue sapphire is now shared by Sri Lanka by half where it used to be at 60-70% of the world quantity. GS1 added that 95% of colored gemstones are from Africa. AU2 informed that the world re-known Tiffany & Co. mentioned to AU2 that everyone wishes to move to Thailand because you (Thailand) are the center of colored stones.

AG1 and AG2 confirmed the GITR statement on the Thai silver export world champion that Thailand is the world leader in silver jewelry based on comparative export sales to the US market which is the world biggest world silver jewelry consumption country. The two participants revealed the secret of becoming the world

silver leader is prevailing varieties of gemstones in different price ranges as the key to encourage more sales. AU3 confirmed that, being a gems center assists us to become a world jewelry center where AU1 provoked if losing the gems center position will inevitably lose the world jewelry position too. AG2 explained on the degree of jewelry industry dependability to the gems industry that, Thailand is very skillful in gem heat treatment and stone cuttings throughout our historical development. The jewelry industry is sitting next to the gems sources which can be supplied in numbers and size with relatively cheaper price particular the red and the blue while China and India do low grade stones and Sri Lanka specializes in only one type of stone (sapphire). In summary, the OIE1 observation on the gems industry which is midstream industry is supporting the downstream industry that the jewelry industry has proven to pass the test of time and is still valid today.

The colored gemstones centers, e.g., Hong Kong, China, India, and Thailand have varied classes of stone types and grades. Their products are basically overlapping. This situation is promoting sectional competition. The Indians are now building up a strong colored gemstone production base in Jaipur with a high degree of government support. China remains strong in cubic zirconia and low end semi-precious stones by machine cut. These two are producing jewelry of their own sources where their jewelry classes are more and more to catching up to the Thais' product lines and the Thais are catching up to Hong Kong.

The world gems and jewelry market structure is fragmented and divided into many product types specialized by specific countries which are the centers of particular stone. Each of the world gems centers is running their main stream of jewelry production and at the same time expanding their lines overlapping to other countries' product class territories. Each of the product types is competing with one another as they are the same jewelry category but they differ to the extent to which they are made of. One may have a certain budget to spend on jewelry and would alternatively spend it on plain gold chains, diamond rings or colored gemstone jewelry. Their choices of jewelry are promoting competition among product types. However, the consumers' choices are also constraints to various factors. Like the other luxury goods, the economic situation influences consumer behavior and restrains their purchasing power in so much as the fashion trends of the apparel industry which are guiding the jewelry trend.

In general, the world and Thai gems and jewelry industry are fragmented industries. At the level of world scene, there are a number of product types lining up for consumption, e.g., precious metals, diamond, colored gemstones, gold jewelry, silver jewelry, plain metals jewelry, costume jewelry and so on. Particularly at the Thais specialty in gems and gemstone jewelry, there are five countries in the same industries but at different product classes and categories. Hong Kong is at medium-high and high end gems and jewelry as well as being the gateway to China. The Indians are in emeralds and commercial grade diamonds with ranking the world supply of diamond jewelry and at the same time doing colored gemstones at home. The Chinese are in cubic zirconia and low-end colored gemstones and the product of the same class while the Thais are in medium and medium-high gemstones predominantly the red and the blue corundum and medium-high semi-precious stones with their sort of jewelry.

Each of them is naturally trying to expand their "territory" into the others. The Indians are moving in three directions into the Hong Kong high-end diamond and gemstones; Thai medium-high colored gemstones; and starting colored gemstone facilities competing with the Chinese and will eventually target Thai territory. While the Thais chase Hong Kong product classes, Hong Kong is also a gateway for China to go over the Thais in the area of silver jewelry. Sri Lanka is playing a defensive role to project their stone sapphire sources and start producing colored gemstones to the world market with some countries doing this kind of strategy, e.g., Vietnam, Madagascar and Burma are controlling the supply by auctions organized by the Burmese government.

From the above discussed characteristics and properties of the world gems and jewelry industry, the industry is falling neatly into the categories of fragmented industries described by Thompson and Strickland (2001) where they gave a number of reasons why supply side of an industry is fragmented on pages 261-262. The researcher quoted some points that are relevant to the case in the context of the world gems and jewelry industry to theoretically justify the firm ground of the findings as follows:

1. "Market demand is so extensive [ranging from the precious metals to diamond and colored gemstones downstream to jewelry] and so diverse [in many product categories] that many countries are coexisting accommodating the range and

variety of buyer preferences and requirements [based on their fashion and taste] to cover geographic locations [of the consumer countries]".

2. "Low entry barriers allow [countries who have stone sources] to enter quickly and cheaply"

3. "An absence of scale economies [as the industry is labor intensive industry] permits small [counties] to compete on an equal cost footing with large [countries, e.g., Thai vs. India and China]"

4. "Buyers require relatively small quantities of customized products [referring to country of destination fashion and taste]"

5. "The market for the industry's product is more global in many countries [which the product is high value perception and self-recognition]"

6. "Specialization is essential just to keep abreast in any one area of expertise [that there are country specialist in specific product]"

Thomson and Strickland (2001) have also suggested a set of strategies in the strategic management framework into 5 strategies on page 263 which the researcher found them all applicable to the Thai gems and jewelry industry.
These strategies are listing with the researcher's opinion tailoring to the Thai gems and jewelry industry as below.

1. Constructing and operating "formula" facilities-[upgrading the market place uniquely facilitate the trade]

2. Become a low-cost operator-[cost cut on specific ongoing operating costs]

3. Specializing by product type-[specialized in certain product classes]

4. Specialization by customer type-[focus on targeted market requirements as well as reinforce by supporting the industry members to develop their expertise to that particular direction]

5. Focusing on a limited geographic area-[focus on countries having bilateral trade agreement with]

The above listing strategies arise from positioning analysis. The general concept suggests that the strategy will be initiated based on the market structure and prevailing conditions where the player stands. This positioning strategic framework will be discussed in further details with the aim to construct strategic recommendations for the industry capability development in the next chapter.

Part II: Thai gems and jewelry industry competitive advantage development

Thai gems and jewelry industry is having a long historical development

The gems industry history dates back to the King Rama the 5th reign under his majesty patronage where ruby and sapphire were historically found abundant in Thailand in Chanthaburi and Kanchanaburi, respectively, as revealed by AU2. This is perhaps more than 150 years from the year to date. Along with the stone cutting skill development, the heat treatment technology has been successfully developed as a core knowledge network and passed down from one generation to the next. The Thai skills in this field are demonstrated by the Burmese hiring Thais to teach them the know-how as well the Indians recruited Thais to help them on stone auctions in Singapore said by the same source. AU2, AU3, GS1 and GS2 shared their observations that the gems mining and heat treatment are risky businesses but these activities are the base of Thai basic characteristics. Thais like gambling which reflects to the Thai spirit of adventurism. AU2 concluded that Thailand would not be able to be a gems center without having gemstone mines in the first place.

Heat treatment is the utmost importance process of the gem industry. Since the rough stones are natural, this process is to enhance the quality to get rid any impurities or cushions from the stones which incurred from the natural process of stone formation. AU3 claimed that only 2% of natural stones do not require heat treatment. This may say that 98% effectively need such process which the Thais are good at. AU3 also described that the heat treatment is an art more than science and the West produces the machine to serve the Thais. It is an art because the heat treatment matches the temperature degree to each stone lot perfectly otherwise failing to do so may cause a disaster of melting down the stones. AU3 concluded that this process is learned from doing where each type of stone and lots are varied and one may lose the whole lot in the fire if miscalculated. Each lot of stones is graded into various grades upon which are priced in many ranges. The same person revealed that the trader might find a very good lot from his/her buy where a few top grades from his grading pay off what he/ she paid for the whole raw material lot. Then, the remaining downgraded stones are his/ her profit. Basically, the heat treatment is to enhance

the stone quality in order to increase the unit price of each stone grade. Therefore, the process of learning to do the stone treatment is by product of stone trading.

The hard way is to buy low grade stone to practice the heat treatment that is not economically viable besides precious or semi-precious stones are valuable items not for learn by trial. GS1 reported on the current status of the heat treatment technology development that, there no one dares to risk their money by making investments in heat treatment as the Thai do now. As mentioned earlier, Thailand's competitors then choose to hire Thais to assist on stone valuation or to do technology transfer for them rather to develop by themselves which is costly and time consuming. Ironically, AU3 said that Thai experiences are accumulating from what the Thais had burnt the whole lot of their own stones out of the country! In summary, this heat treatment expertise along with the Thai uncompromising quality of stone cutting upon which the Thai competitive capabilities are based put the Thais to vantage position as a world gems center.

The emergence of Gemfields into the colored gemstones auction has changed the value chain on the part of raw materials to the market. The gemstone sourcing activities were previously in the hands of medium to small size stone traders though some miners were trying to direct to the market without success as mentioned earlier on Burma, Vietnam and some African countries. Gemfields is a gemstone mining company doing mining activities predominantly in ruby and emerald. The person or country who wins the auction would then control a sizable supply of the materials that may endanger the Thai position which specializes in ruby and sapphire. This situation was like Sri Lanka's which now controls the sapphire rough stones traffic. However, GS2 comforted that the auction lots are at present still coming to Chanthaburi directly or indirectly for heat treatment and cutting.

The Thai jewelry industry development is much later than the gems industry to which jewelry making is normally under royal patronage. AU3 made a comment that the jewelry industry originated from the gems industry and from his memory the jewelry industry has been started for a long time but began to be well-known to western societies during the Vietnam War where the GIs brought home Thai gems and jewelry. AG1, AG2, AU1 and AU3 agreed that the Thai competitive capability in gems and jewelry industry indeed rests in the skillful hands of the Thai master

craftsmanship either in stone cutting or jewelry making. In specific, the Thai comparative advantage over other countries is the Thai people themselves. Thai personal traits are easy going, outgoing personality, and easy to train and control in the production line. This is in general is the so called 'Thai hospitality'. AG2 stressed that honesty is also one of the important characteristics required in this industry coming into terms dealing with valuable items such as gems and gold. Thais have this kind desirable quality more than other countries.

On the top of this, AU3 asserted further that Thais can do mass production jewelry with standardized product quality of handmade pieces to which is difficult to control since jewelry is handicraft works not produced by machines. The Thai proprietors are also known as highly flexible to deal with among other nations within the industry. The Thai hospitality appears on their friendly approach and willingness to help their business partners and customers, expressed by AG1 and AU1. Indeed, these national characteristics cannot be replicated since they are inner properties of ones.

It is worth mentioning here that the gems and jewelry industry is having high operational flexibility particular the gems giving high margin to compensate for the sourcing risks coupled with the stone cutting process is simple to which can be easily trained but somewhat difficult to do for high quality cuts since this involves handicraft. AU1 proposed that, Thais have high potential abilities to do a higher class of jewelry that gives better pay when hit by an aging society and high labor costs. GS2 supported the same that, Chanthaburi people moved to do higher graded stones cutting due to the labor shortage and shift the lower grade to be cut in Isan where they can find more workers. This gems industry is supposedly a household industry where the supply chain network is moving to find the labor sources. This model has been fully developed over 50 years. The industry status can be considered as one of the Thai competitive advantages over other country competitors rarely found in Hong Kong, China or India.

The Thai competitive capabilities are lying on being a gems center having their expertise in heat treatment to support the flow of stones into Thailand and finishing off by cutting. The gems center gives rise to a jewelry center upon which Thai craftsmanship supports to produce exquisite premium quality products with

standardized quality even so they are handicrafts. The Thai premium workmanship is embedded in the Thai hospitality and Thai personal traits. No one can take away this quality from us unless Thais blow it up. Lastly, Thailand has ready-made production networks to support production volume management whereas the industry sale attribution is highly seasonal.

Part III: Nature of gems and jewelry business activities

AG1 cut to the heart of the gems and jewelry business activities that this industry is really a workmanship industry that requires quality control at every production stage where piece works are graceful and detail-oriented, handmade products. The quality control is not only to check the product quality but to testify that the product contents are “real” since the materials are valuable items as GS1 pointed out that raw material specifically gems are timeless and can be kept as investments. The proprietors have to be alerted at all times as their knowledge is being challenged to identify the stone authenticity and valuation. This business is basically relying on individual skills from the level of proprietor to workers on the factory floor. The proprietors have to safeguard their interest protecting theft in their factories as well as from fraud upon purchasing the materials. At the same times they have to focus on the level of class that they specialize in otherwise they would not be able to control the production cost on loss in the process. The labor skill development is other than the proprietor. They focus on developing their skills by having the chance to learn different production techniques particular the stone cutting and stone setting in order to uplift their skills for better pay unless to have a business of their own which their employer encourages them to do.

The gems and jewelry business are labor intensive where labor cost is one of the biggest fixed costs. Gems and jewelry sales attribution is seasonal where the second half of the year is backload which is normally at 60-65%. Doing business by sub-contracting would be able to manage a flexible production schedule. Workers who left the factory for self-employment would have better pay than a fixed salary and can manage their free time at home. Therefore, it is better for both parties. AU3 shared that gemstone cutting is really a SME carrying business at home. It is genuinely a household industry that the investment is minimal and low 5 amp electric

consumption is suitable for home producing for 5-6 work station spinning wheels. The machines can be installed under the traditional Thai style house that always has space. Farmers can do these business activities after work each day or in the off seasons. It could be a full time or part time job.

Since the gems and jewelry business depends on human skills, either the gems or jewelry production unit is producing goods at the level of their product specialized where they find their physical constraints. AU3 drew a picture of the gems and jewelry industry that each household are specialize on a specific level of product line and class to which they made their name on. No one does across stone grade or jewelry class even they know that higher grade and class yield has a better return since they do not have the ability. It will be foolish to buy rough stone across grade but cannot cut or take high-end jewelry order but cannot produce and deliver.

AU1 and GS2 pointed out that though the gems and jewelry industry is labor intensive the labor portion in cost structure is very little because the material value is certainly high. Thailand is producing stone type and jewelry class at the level of medium to medium-high end is giving the best yield in comparison with the low and the high-end. The gemstones can call better margin than diamond. The jewelry labor cost is normally less than 15%. Any competitor countries that have relatively lower minimum wages than Thailand are only having an advantage on the labor portion of the 15%. Gems and jewelry are known as high value creation products.

Majority of the industry members are SMEs

The industry census has revealed that this industry is SME predominated, see Table 3. All participants confirmed directly and indirectly that the industry is definitely so. AG2 remarked that SMEs make up the majority of the 85-90% but the big companies are having high export figure than the SMEs but less labor forces than SMEs. There are 3 groups of SMEs: subcontracting for exporters; direct OEM order producers; and cash and carry market wholesaling. The first two categories are vulnerable on price squeezes by buyers. The first groups are those work groups breaking away from big factories and their pay basing by piece, AU3 said. They can be either gems or jewelry workshops. The second ones are those family business proprietors with 20-30 workers receiving order from both direct buyers and those outsourced for export as AG1 described. The third kind has a better stand.

They operate their wholesale outlets and shops scatted around Bangkok. The second operation type was growing fast due to the market surged in the past. AU2 evaluated the first type that the origin is from gems businesses and it is really a household activity after work and then expanding to 20-30 people work group where traders distribute rough stones for their cutting. AU3 share different views on the first work group that the subcontractors are also jewelry makers are 20-30 people workshops serving the retail jewelry stores on long time relationship. They are normally earning handsome pay from the domestic retailers for their pieces to ensure high quality product which is highly demanding locally. AG2 concluded the nature of SME is not upgrading their operation since it incurred costs and of course Thais do not prefer changes.

SME business activities are OEM and being a subcontractor

As discussed in the previous section that the SME is a subcontractor, AG1 and AG2 amplified that these SMEs produce orders by OEM based on customers' design from big company as subcontractors. Thailand is a center of OEM production and having a few operating design manufacturing (ODM) and operating brand manufacturing (OBM). AU1 stipulated that those SME are subcontractor to big factories which on the census was 380 proprietors. Then, it is rightly to help SMEs having continuous orders from those big ones rather trying to teach them to do product development! AG1 supported that it is rare and only exclusive to big company building branded product with foreign partner to building up the OBM operation. Some subcontractor is having financial strengths. They can then provide their own materials, e.g., metal and stones. They would be able to charge for better a workmanship rate but those who cannot provide such material are then having quite lean labor charge. AU2 clarified the point why the subcontracting exists because of the big factory production constraints due to the seasonal sales attribute and each factory is having different level of specialization where the production network is really helping them to fulfill the order. This is one of the reasons why multinational companies are moving to Thailand apart from being gems centers and having exquisite skill craftsmen supplied in quantity.

GS2 explained further that the nature of OEM required doing neither design nor marketing activities since they receive order from big company through the subcontracting activities. GS2 and AU3 cited that to create a brand is far fetching.

SMEs do not do their own design brand but the foreign brand retailors do. AU2 pointed out that design is not only product drawing but integrated taste whereas having deep rooted in customers' custom and tradition. The brand is really having the society's DNA in it. AU2 does not see any successful Asian jewelry brand in Western societies through many decades of experience. AG2 supplemented that Thai identity on a piece of jewelry cannot be sold to the open world market apart from selling as souvenir locally to tourists. AU1, AU2 AU3 and AG2 agreed that design is what the consumers' market tastes which are western dominant. The approach to the product design is that Thais should ally themselves to the ongoing consumers' fashion trend in each particular market rather than trying to do their own original design and manufacturing jewelry for the westerners to wear. This might be an explanation as to why some Thai designers are copying designs from Western magazines. In fact, it is a natural process to establish their main theme of design.

As mentioned from time to time, the gems and jewelry production technology is learning by doing. The craftsman is quickly learning from other piece of works. Besides, the people who give work to the subcontractors will give full instructions on what type of work and level of quality on the product they ordered. This would come with production technique how to do the piece. There is no hidden agenda for them not disclosing the technique to the subcontractors because it will enable subcontractors to become production efficient serving a big factory AU1 and AU3 confirmed this thinking.

AU1 foresaw Thais are technology users. From this perspective, factory would make their own decision whether to buy them or not because the technology on the Thai skillful hands can always be extended to use in many ways from the craftsmen experiences. AG1 advised that the technology transfer will be implemented at the level of middle size to big factory as they can relay this to their subcontractors. To encourage more multinational companies to invest in Thailand would help to promote the technology transfer but the pitfall is they will draw the limited pool of skill labor to become even more critical.

The nature of the gems and jewelry business activity involves workmanship. Master craftsmanship is the industry key success factor vested in human skill to which personal traits is utmost important factor to uphold such quality to the stage of art.

The nature of production output is highly handicraft but required standardized quality like other mass production counterpart. Operating the gems and jewelry business is analogously putting right ingredients of human talent mingled with production discipline to the formula of success. People in either the gems or jewelry business are highly specialized in their incumbent business activities. Both the proprietor and workers are safeguarding their own benefits. The raw material is high value perception so that the business owner finds every measure to protect his/her property while production is directly involving with the human factor that shares the high margin to be distributed to the craftsmen.

The essence of the Thai industry nature is based on its main characteristics thus dictating the ways the industry members conduct their business activities. Though the business activity is labor intensive, it is also extensive skill oriented. The business network which includes marketing, financial, operation and production is constructed in pyramid shape through their mutual benefit knitting in form of subcontracting network. Each proprietor specialize stone type and product class of their own due to level of skill constraint. The majority of industry members are SMEs and their business activities are OEM and being subcontractors. Since SMEs' orders mostly come from the big factory through the subcontracting network, design, raw materials, and perhaps technology in some case may be provided by the big factory for SMEs. Product design from OBM which is associated with branding is only for the privilege of the big company and multinational company to pursuit. Designed brands are complicated. It is not only drawing and sales promotion but it is an integral part of the consumers' taste interwoven with custom and tradition of specific market. The medium-size factory is striving at ODM and having its own marketing network and small particularly household industry prefers OEM solely. Production technology is thought to be passed on from the big factory to the small ones through the subcontracting lines. The findings from this micro-analysis have tremendous impact to gems and jewelry industry competitive capability development.

Part IV: The Thai gems and jewelry industry SWOT analysis

The SWOT analysis is perhaps the most popular and dominant model being borrowed from the school of management to analyze the various scopes of the subject

to study when researchers wish to distinguishing one's positioning from the group where it belongs. The coverage of the model can be analytically applied as far from the largest scale of economic community to compare with other regions, e.g., EU, ASEAN, NAFTA, etc. which reduces country competiveness in comparison with other countries and if you like scaling down to a unit of a company within a certain industry. Originally, the SWOT analysis is widely using in business to draw a company positioning from various facets of marketing, product, production, and operation against the average industry performance or in some case to compare one company performance with its individual competitor.

In business, this kind of study is normally conducted by the CEO's office as this exercise needs to have full collaboration and thus gaining efforts across functional management sections of a company, e.g., manufacturing, operation, marketing, finance, human resources and administration. Assumptions are made that these functional lines would have thoroughly known and muster the knowledge of their company strengths and weaknesses in so much of foreseeing opportunities for the company to grow and the encountered threats to their company from various angles of their functional issues. Information is gathered through brain storming discussion in various sessions till boiling down to agreements upon company positioning. This exercise is compulsory as it is yielding at a set of database for company strategic formulation as presenting an important part of business plan and annual budget. Indeed, these trials for factors of discussion are known factors by specialists who are the department manager of a company learning from their daily operation of each department in charge of their assigned functions. Conversely, this company practice is other than doing the industry study where factors are unknown and yet to be collective identified by industry members.

In a methodological manner, qualitative research strategy is the best suited tool to enquire this type of industry information. However, most of the cases the professional researchers who conduct researches are naturally not experts in the specific industry they do the research on. One should take in consideration that the integrity of their findings are singly relying on analyzing and synthesizing of information from participants by the researchers' data interpretation who may not have in depth knowledge of the issue other than most of people in the industry who do

not have sufficient knowledge to conduct the research of their own. There is thus a limitation in this accord to effectively enable the researchers to verify and justify the enquired information in order to reach out for prudent advice on strategic issue. In words, there is no millage gauge to tell whether information is entirely achieved through the process of data collection by them or each set of data is fully recognizable equally on data analysis. As far as data collection and data analysis are concerned, researcher is physically resuming the position as a research tool accountable for data validity and accuracy of his/her research. In-depth knowledge of the industry in both areas of the industry general settings and details of the industry value chain and its operational activities would certainly be by far a great assistance to conduct researches. If there is a choice to choose from, it is appropriate to have an experienced researcher from the industry to do the research of their own.

The researcher realizes these constraints upon reviewing the 5 research studies and thus selectively making reference from their studies. One of an example of this sort was that the OIE2 setting performance benchmark by using its findings basing from mostly local proprietors where their sales were largely representing at 74.5% domestic sales to make a comparison with its judgmental selection international companies assumed to be competitors to Thailand. These companies are the world class well established companies while the Thai counterparts are local companies which are doing sales locally. Then, data interpretation from this comparison would be misled. Furthermore, all of judgmental samples are legendary of the jewelry business world. From the researcher's knowledge learning from experiences in the gems and jewelry trade more than 20 years, Tiffany and Co. of New York has been well established for more than a century by having shops worldwide so is Gitanjali Gems which is USD 3 billion group of companies having a strong hold in India. The 130 years old Bulgari SpA is a world class Italian high-end product and Chow Sang Sang Holdings is well established over 80 years representing as the main regional chain store "China town" gold and diamond jewelry in Hong Kong serving mainly mainland Chinese customers. Each of these companies is specialized in different type of product and market entirely different from one to another. The OIE2 comparison was basically made the local Thai companies perhaps mostly are SMEs to compete the whole world in various product lines.

One of the important features of the SWOT analysis is to report general atmosphere and conditions of the industry in conjunction with degree of competition in the industry of the subject to study. The SWOT analysis is expressing the contemporary situations of industry at the time of its study took place. Conceptually, the SWOT analysis could be studied in time series analysis by combining the five research studies of the SWOT analysis in form of summary report and do data mapping. The report is to group the same factors under the same section labeling by year of the report. By doing so, it shows industry development over the past 10 years from 2002-2013. Please refer to the below table showing properties of the 5 research studies information.

Table 10. Summary of the 5 main researchs and their research year

Research title/ Office in charge/ Researcher name/ and Research tools	**Abbreviation**	**Research year**
Master Plan for Gems and Jewelry Industry, 2002 By Social Research Institute, Chiang Mai University For the Office of Industrial Economics (OIE), Ministry of Industry	OIE1	2002
Development of Comparative Industrial Database Project to enhance the Gems and Jewelry Industry Competitive Advantage, 2010 By Faculty of Economics, Chulalongkorn University For the Office of Industrial Economics (OIE), Ministry of Industry	OIE2	2010
Strategies and Master Plan for Fashion Industry in Creative Economy, 2011 By National Institute of Development Administration For the Office of Industrial Economics (OIE), Ministry of Industry	OIE3	2011
Action Plan for SME Promotion: Gems and Jewelry Industry, 2012 By Thammasat University For the Office of Small and Medium Enterprise Promotion (SME), Ministry of Industry	SMER	2012

Table 10. (Continue)

Research title/ Office in charge/ Researcher name/ and Research tools	Abbreviation	Research year
2014-2017 Strategy and Action Plan for the Thai Gems and Jewelry Development, 2013 By Chula Unisearch, Chulalongkorn University For the Gem and Jewelry Institute of Thailand (Public Organization)-(GIT), Ministry of Commerce	GITR	2013

Sources: The researcher summarized from the pilot study

Even though, these research titles were different but their intentions of the industry SWOT analysis preparation was the same objective. Their purposes were to update situations of the gems and jewelry industry in order to recommend strategies for industry development. The researcher prepared the summary report where the frequency of the factors occurs at the most and asserted some of the factors even though it is showing only one on the report if it is relevant as well taken out irrelevant, unclear/ skeptical or out-of-date points where it show conflicting positioning i.e. addressing having strong support industries on Opportunities by the GTR while also having many points specifying there are shortage of raw materials and finings as well as relying on import items on the Weaknesses. These decisions are based on the researcher's judgment by having long time experiences in the industry. Please review the full set of report on Summary of the five main researches on the Industry SWOT analysis on Appendices 3.

Prior to the full discussion on the summary of the SWOT analysis, it is necessary to understand the terms in pair of Strengths and Weaknesses; and Opportunities and Threats. The first pair of Strengths and Weaknesses is the internal factors of the Thai industry. They express qualifications of the industry of what the Thais are good at and the weak points. However, the term Strengths does also mean the vantage position of the country in terms of the country competitive capability.

This qualification is hard to copy by others and taking times to achieve in such a position and conversely loosing such position. This is the same rule applying to the qualification of the Weaknesses. The Opportunities and Threats are simply the ad hoc situation that the Thai gems and jewelry industry is facing. These factors could be resolved by themselves or become even worse if nothing is done about it. It depends upon the cause of actions to remedy the situation. For example, economic downturn in major country markets may temporarily reduce export sales and the export sales will regain the ground once again at the time of their economic recovery. But the shortage of a skilled labor supply may threats multi-national companies to shift production base to neighboring countries if the government does not take action either facilitate crossing border labor or training more workers to the industry. The researcher will discuss the SWOT analysis in separate sections of Strengths; Weaknesses; Opportunities and Threats. This report will be updated by the conducted research as the research results are reported in the previous chapter.

Summary of the strengths

Thailand has long been known as a place for highly skilled craftsmen producing exquisite quality gems and jewelry for many years. All the research shows this qualification. This qualification neither can be acquired overnight nor happen for the last 10 years on the range of these research studies. This is one of the outstanding personal attributes of the Thais. This trait is distinctive and similar to the “Thai hospitality” in the tourism industry. It cannot be easily copied, duplicated or imitated since it is a characteristic of a Thai. This highly skilled handicraft has been supplemented by the abundant sources of quality gemstones in the past, e.g., ruby and sapphire and becoming the world gemstones market today though its natural stones are almost depleted as referred to on the table on the next page.

Thais have a high spirit of adventurism combined with cumulative skilled from one generation to another on heat treatment and stone cutting quality making Thais particularly those Chantaburi people become “the treasury hunter” of the sources of new gemstone mining to the world. Their activity begins from the neighboring countries where are a gems belt in South East Asia to Sri Lanka, Australia and Africa. The 5 research studies have all remarked on this point. In fact, this gems industry has long historical development since the end of World War II referred to OIE1. Thailand

has built the gems and jewelry industry for many years back along the ways creating fully integrated production cluster and network to support the two main industries. These sub-industries are commencing from mining, metal refinery, semi- fabrication intermediary product, e.g., stone cutting and mounting, manufacturing jewelry, distribution network and international company QC office, and Logistics. This network needs to be developed over a long period of time. The new country competitors are having a certain years of development gap from the Thais.

On the top of the issue, Thailand is having well-known international gems and jewelry trade exhibitions to be a window for trade. Apart from being a channel of distribution, this trade fair is also drawing visitors to boost the hospitality and tourism industry that other industries can benefit from as the Asia Pacific travel center.
In addition, the GITR pointed out that Thailand has flexible production units accompanying with fast changing fashion trends. This is perhaps one of the strengths of the SME properties that can adapt and endure to change to a multi-national company.

Table 11. Summary of the 5 main researches on the industry strength from their SWOT analysis

Summary-strength	**Research year**
1. Labour Group:	
Possessing hilghly skilled handicraftmen	2002, 2010, 2011, 2012, 2013
2. Procduction Technology Group:	
Outstanding heat treatment and stone cutting quality	2002, 2010, 2011, 2012, 2013
3. Marketing Group:	
Being the world gemstones market	2002, 2011, 2012, 2013
Having gems & jewelry trade exhibition as channel of distribution	2012, 2013
4. Production Group:	
Possessing fully integrated production network	2002, 2011, 2012
Doing high quality gems and jewelry products acceptable by customers	2010

Table 11. (Continue)

Summary-strength	Research year
Having flexible production units to fast chaning fashion trends	2013
5. Others:	
Being the Asia Pacific travel center	2002

There are three points that were cancelled from the list. The world top three silver exporter and having gems and jewelry laboratory raised by OIE2 do not contribute to competitive capability in the long run as well the indigenous societies started developing jewelry with unique designs and handiwork proposed by the GITR does not mean that their handiwork will become fashionable and popular. In sum, these three points should not be considered as the Strengths of the Thai gems and jewelry industry.

Findings

All participants confirmed the notion of Thai hospitality and Thai skillful craftsmanship is on the top of the list. Proprietors are flexible in trade and willing to help customers with care, friendliness and support, and with less rules with truly creative engagement as AG1 and AU1 noted. AG1 pointed out that our meticulous handiwork was from our racial physique combining with natural traits of the Thai to give rise to specialized craftsmanship whereas AG2 added that honesty was also important characteristics of the Thais over their other country competitors. AU3 concluded that Thais have an in-depth knowledge on what they do specifically, such as heat treatment, stone cutting and jewelry making together with their outgoing personality which is easily to control on the production line. These results at standardized quality products coming from their hands through these output are handmade handicrafts.

Conclusion

It is of the view that the Strengths of the gems and jewelry industry is “Having a number of skilled craftsmen producing handicraft jewelry with standard quality and meticulous cut-stone with exquisite heat treatment techniques”.

Other factors such as being the world gemstones market, doing high quality gems and jewelry product acceptable by customers, possessing production network, and having flexible production units are really a result of what the Thais are and good at.
The remaining two which are Asia Pacific travel center and having trade fairs of its own are country strengths relating to the industry.

Summary of the weaknesses

The summary report of this industry Weaknesses is longer than the other three scopes of study, e.g., Strengths, Opportunities and Threats. In fact, the Weaknesses cover across the board of those factors that may directly affect the industry critical success factors where the competitive capability development is centered around. In words, to produce quality jewelry needs to have combination of good design, meticulous skillful workmanship and first class production technology. However, the Weaknesses summary indicates that apart from good skilled craftsmanship Thailand lacks the proprietary skills necessary in trade, such as design and production development; production technology; and marketing networks.

On the top of these important elements, Thais rely on imported raw materials and also losing pace on the vantage of the labor force as workers lack production knowledge and lack of labor supply to support the industry growth while their wages is relatively higher than its Chinese and Vietnamese counterparts whom have been assumed as the Thai's main competitors. Ironically, the Thai gems and jewelry industry must have been gravely ill caused by these lacks. However, the Thai industry is still vividly intact and even so proudly stated on the NIDMP objective to become the world gems and jewelry center following with the SME and GIT erected this notion to their vision statement. It is a paradox yet to be solved as to how the Thai gems and jewelry industry has survived these years journey through a tough times over a decade when it has been the most critical period in the world jewelry industry, e.g., world economic crisis and commodity market turmoil, e.g., currency, precious metals and oil.
The Weaknesses report is compiled for review on the next page.

Needless to say the heyday of the Thai gems and jewelry industry has departed. The era of abundant resources of the world well known Siamese ruby and sapphire with relative low cost of labor at premium quality gems and jewelry has gone. The Thai positioning to the world nowadays is differing from the good old days

to the extent to which it is only producing beautiful gems and jewelry prevails. The natural resources are depleted and most of the stones are imported to be cut and traded where Thailand is offering itself as the market for colored gemstones to the world. This remark was strongly supported by all the five researches saying Thailand is “relying on importation of diamond, precious stones and precious metals”. Apart from these main raw materials being imported, the situation of findings and accessories has not been better.

Table 12. Summary of the 5 main researches on the Industry weakness from their SWOT analysis (2)

Summary-weakness	**Research year**
1. Raw Material Group:	
Relying on importation of diamond, precious stones, and precious metals	2002, 2010, 2011, 2012, 2013
Relying on imporation of findings	2002
Lack of support on sub-industries e.g. findings, mount, mold, and machinery	2011
Shortage of finings and assessories supply domestically	2012
2. Labour Group:	
Thai wages are higher than China anv Vietnam threating to shift production base	2002, 2010, 2011
Workers lack of production knowledge reducing competitiveness	2010, 2012
Lack of labour forces to support the industry growth	2011, 2012
3. Production Techonology Group:	
Lack of research and tehchnology on melting, casting, stamping, and plating	2010
Lack of support on research and development	2012

Table 12. (Continue)

Summary-weakness	Research year
No machinery techonlogy restricted ability to do product development	2013
4. Product Development Group:	
Lack of product design software development prone to import from overseas	2010
Lack on precious stone cutting design	2010
Lack of tech investment for design and cuttring stones other than India, Europe	2011
Lack of gems and jewelry design skills	2012
5. Marketing Group:	
Marketing and credit system network among proprietors is not strong as India	2002
Lack of product branding skills	2012
6. Finance Group:	
Lack of financial funding supports for new business establishment because this this business required high investment funding	2011
7. Others:	
Bad image on dishonesty of the proprietors	2002

The OIE1 initially noted these items were relying on importation since 2002. The OIE3 had still reported general outlook of the industry in 2011 of the lack of support from sub-industries, e.g., findings, mount, mold and machinery and the SMER told there was a situation of shortage of findings and accessories supply domestically a year later. It is interesting to study further how the situation of not having the main raw materials as its own would pose detrimental effects to the causes of the industry competitive development and how Thailand has sustained its industry competitiveness all these years and still do so strongly over a decade since this symptom has firstly detected and reported in 2002. It is an observation that this situation might have persisted prior to the OIE1 till today.

Thai wages has always been higher than the major gems and jewelry exporting countries, e.g., China, Vietnam, and India. The higher wages condition has been reported since 2002 and repetitively came up again by OIE2 and OIE3 in 2010 and 2011. Furthermore, the OIE3 and SMER pointed out that there is not sufficient labor supply to support the industry growth. This labor shortage has become fact of life for all proprietors across industries for many years. In effect, it is natural that the persistent occurrence of labor high turnover rate does not encourage extensive work training, particularly in this labor intensive business which relies chiefly on skilled workers to produce quality pieces of art. The OIE2 and SMER revealed this affect simultaneously by stating that "workers lack of production knowledge reducing competitiveness". Be that as it may, workers are naturally attracted to less complicated work with high pay. Only a few people have the finger dexterity and prefer handicraft work personally choose to work in this industry. In sum, work in the gems and jewelry industry is opened to those who are willing to work in this industry. Since the factor of relative higher pay than its competitors has happened over a decade, but Thailand has not yet experienced the shift of the production base. Perhaps, the factor of efficiency would have been balanced out or compensated to the factor of higher wages in this gems and jewelry industry if not the issue of labor problem of the Thai industry might have been chronically worsen before long. One may argue otherwise the problem might have been waiting to erupt.

It should not be an argument that the gems and jewelry industry is a fragmented industry, then people in the industry shall "accept" the status of what they are and doing nothing about it. However, the researcher does not agree to "remedy" the situation by simply recommending to "curing" the Weaknesses. The strategic recommendations of this study are balanced between the industry macro and micro analysis.

The OIE2, OIE3, SMER and GITR lined up three lacks of production technology and four lacks of product development. The first group is straight forward lack of production research technology restricted ability to do new product development. The second group begins with the lack of gems and jewelry design skills referring back to the stone cutting design which is one of the most important elements of jewelry design. Once again, Thailand is in this situation because it lacks

the technology investment for design, cutting stone, and product design software development. In addition, people in the industry is also lacking in marketing and credit network as well as financial funding support.

Lastly, the bad image on the dishonesty of proprietors hampered to overall consumer confidence to Thai products. Even though it was quite a distance past, the researcher believes that this cause has not been reported due to research conducted on a later period was focused on the export market rather looking at the gems and jewelry industry as a whole. The endless complaints on fraudulent overpricing have cropped up to public attention from time to times associating with the zero-dollar tour drove government putting jewelry to be product under label control. Interesting to take note that market competition does not work well in this industry since the product is impulse buying prone to ones' preference. It is skeptical to say that any damage done on the tourist market locally will directly harm the Thai export market once travelers return to their homes.

Recently, there was a phenomenon of market divergence in jewelry domestic market. The local jewelry market evolution has been gradually expanding from traditional Chinese gold ornament shops to fine jewelry sales at department stores and shopping malls for the last 10 years. The latest market development has given rise by the TV frequency privatization. There are some jewelry TV shopping programs on air. Consumers are easily accessing the products more than ever. Jewelry is brought to present to their home and payment is electronically convenient. Should there be any authority to regulate this trade transaction in terms of product knowledge conformance benchmark in relation to the recommended pricing? The incident of "green gold" is one lesson to learn from over market competition or the way round it will become even worse if there is a condition of market collusion occurred particularly might have been happened on the section of those tourist attraction jewelry shops. It will be disastrous if tourists find the price they paid for a piece of gem or jewelry bought in Thailand where the source of colored gemstones doubled the price they can buy at regular retail shops in their own countries. None of the public relations schemes are effective enough to deter the consequent widespread bad mouthing in the export countries of the Thais.

There are some points that the researcher excluded from the Weaknesses list with reason that some of them are results of the Weaknesses itself and some is not relevant or was stated on other section. The lack of gems and jewelry design skills, product branding skills and financial funding addressed by SMER are really the root causes of the problem of copying design rather than own creativity (GITR), doing OEM results at consumers do not recognize the Thai product potential and would be able to market at its Thai brands (OIE3), lack of continuous proper product promotion and public relations (GITR), Thai marketing strategy is defensive (SMER), and Thais do not have a "big name designer" (GITR). Some are perhaps a dual effect from lack of marketing skills and proper financing makes the Thais to do marketing of their own and thus promoting their product and carrying on public relations scheme. It is skeptical that the workers are having problems using machinery and technology (SMER), then the lack of production knowledge (OIE2 and SMER) or they do not have the chance to access to the new technology and machinery at all in the first place because they are SMEs who lack the funding to improve their production processes. The point of government offices lacking collaboration among themselves stated by OIE1 on the Weaknesses was noted altogether on the Threats section with the GITR's remark.

Findings

Four out of seven participants mentioned about the lack of unity in the gems and jewelry industry collaboration results in weakening the bargaining power of the private sectors in form of trade associations to either government or international organization even at the level among industry members. AU3 pointed out this phenomena might be structural problems that people in this industry specifically the gems industry are decisive to what they do as the decision of live or death have to make all days long i.e. to decide whether the stone lot is genuine and by how much to pay. AU3 told his experiences in extreme that in many occasions he received a 10 million Baht check to release a sack of precious stone from buyers he barely knew at his mine in deep jungle as the same time the buyer carry that sack back home to do heat treatment that he/she trust it will come out fine. Doing this kind of works takes plenty of courage! That is why people in this industry supposedly have a lot of self-confidence so to consult his personal or business matter with the proprietor in the field is unlikely apart from the western business society counterpart.

The serious weaknesses issue that every participant shared in common is the problem of the raw material shortage specifically the flow of stones into countries thus causing less variety of stones in the market. AU2 and AG2 expressed their concerns on this and pointed out that the root-cause problem is the tax system that barred the influx of stones. AG2 claimed that is the reason why Gemfields does not do its auctions in Thailand. AU2 explained further that the tax system drives gems people underground and the jewelry people have to face problems to find the proper documents on their raw material purchases to substantiate their straightforward export trade. AG1 opened up another issue that the industry lacks the production technology that needs to be encouraged and promoted by government as GS1 and GS2 proposed to institutionalize the supply chain connection between the gems industry and the jewelry industry. AG1 and AG2 addressed a most serious troublesome weakness of the labor shortage issue due to an aging society and people moving out from the industry to other industries.

Conclusion

The Weaknesses of the gems and jewelry industry is “Severely shortage of rough stones supply flowing in from original mining sites since local mineral deposit depleted and labor forces constraint due to aging society.” Points 3-7 from 5 research studies summary and the lack of findings and components and supporting the industry are excluded from consideration due to the micro-analysis indicated most of the industry members are SMEs. Their business activities are OEM and being a subcontractor. However, it does not implicitly mean that our strategic formulation and recommendations will omit those points but will be brought out to discuss once again under the framework of positioning analysis which focuses more precisely on the agenda rather than discussing the situational analysis that is broadly at the policy level. Reasons to select the two dreadful problems are because the industry situation is chronic and threatening the existence of the gems industry. As the findings revealed, the gems industry is supporting the well-being of the jewelry industry where the majority of participants expressed their concerns on the issue.

Summary of the opportunities

Prior to discussing the Opportunities in greater detail, it is necessary to understand what the Opportunities are. In this context, Opportunities does not mean

a chance opened up to everyone to leap for the benefits but rather a unique situation is exclusively offered to one and no one else would be easily able to seize such benefits or at least temporarily apart from the one it offers to exploit from the vantage position. This position may be raised from the country competitive advantage, from monopolistic status owning scare resources or possessing comparative capability by having high technology or supporting the infrastructure to benefit from the situation. However, if one country tries hard enough to reinforce its level of competitive capability over the years, it might be able to acquire such position or even surpass the current one who does not take heed on world competition that is the name of the game on the high tide of globalization. A summary of the Opportunities are showing below:

Table 13. Summary of the 5 main researches on the Industry opportunity from their SWOT analysis

Summary-opportunity	**Research year**
1. Marketing Group:	
Market share is still low and can expand more particular in tourism industry	2002, 2011, 2013
Domestic market trends are receptively expanding	2002(4), 2012(2)
Bilateral trade agreements encourage to market and RM procurement expansion	2010, 2011
High potential of market growth in ASEAN and new markets	2002, 2012(3), 2013
2. Government Support Group:	
Having consistent and continuous supports from Government	2010(2), 2012, 2013

The three researches conducted during the period of 2002-2013 have reiterated that the Thai market share to the world consumption is still minimal and has the chance to grow, particularly the domestic tourist market. The OIE1 and SMER are still insisting that the trend of domestic consumption in either local sales or the tourist market is pervasive and offers high growth. Interesting enough, the OIE1 states 4 points

out of a total of 7 points on the local market opportunities in 2002. The 2 out of 4 points of the local market opportunities was about the channel of distribution foreseen from the US market evolution, e.g., TV shopping, mass merchandiser, department store. There has been accelerating growth of counter sales outlets at department store for the last 10 years and only 2-3 years opening up the new phase of the TV shopping network where the TV frequency was liberalized. The SMER added up the online E-commerce in 2012 which has proven less effective than TV shopping where the TV host can interact with the audiences but the coverage of the internet is worldwide.

In addition to the market prospects, there have always been new markets for the Thai gems and jewelry. OIE1 cited the potential market growth in China and the Middle East in 2002 while the SMER and GITR was conducted during the ages of the free market economy promoting the free trade agreement (FTA) through bilateral agreement came to full swing during 2012-13 after the WTO negotiation round was doomed and the approaching AEC. The AEC, China and Russian were added on the top list of SMER. The Thais look upon countries having a trade agreement with as a window to trade as well as sources of raw materials to import, especially precious stones, and the OIE2 and OIE3 raised these points. The need to establish a factory in the country of destination to produce for each particular market is diminishing for the Thais on the one hand while Thailand is becoming a gateway as a production base for foreign direct investment to export to those countries that have trade arrangements with Thailand on the other.

The government sectors have extensively supported the gems and jewelry industry all the way through from the beginning according to the OIE1 document review. The industry was selected as the industry of the nation in 2002 and being researched by OIE1 for the NIDMP under the Taksin administration. The Thai gems and jewelry industry has been put on the top priority industry ever since. Many privileges have been granted to the industry either local or export trade particularly the tax exemption on the import duty on precious metals and gemstones, investment incentive by BOI, the international trade exhibition supports, sponsored trade delegates etc. The researcher foresees more support to come in the future as the recent trend of support has been vivid referring to OIE2, SMER and GITR across the period of 2010-13. The stream of current support is still continuously strong through the GIT

and SME Bank to uphold the industry competitive capability and funding in the present world economic stagnation in both the US and European markets which are the major Thai markets.

There are many points stated as opportunities on this research that were dropped. The researcher does not give importance to economic recovery of the major markets as the emerging opportunities is for the Thais as well as for every trade party to those major markets. Everyone who trades with those markets will enjoy the same sales increase from the beneficial situation. The GITR pointed out in the opportunities section that the Thai industry has strong supporting industries really contradicted with itself and others. Their industry weaknesses was saying the industry lacked raw materials i.e. precious metals, precious stones, findings and accessories; lack of product design and technology and a lack of marketing networks. These lacking factors on what they said are in fact the supporting industries to the gems and jewelry industry.

Findings

AG2 opened the issue that marketing technology, production technology and management technology are now coming with those world multinational companies that have shifted their production bases from China and our surrounding nations to Thailand to after our craftsmanship quality since this retailed jewelry is required for premium quality products. At least 3 big internationally acclaimed branded products have shifted their production bases to Thailand with full outlets opened at big shopping mall and department stores around Bangkok. AG2 added that this is the main reason why Thailand is becoming the world silver exporter. AU1 supported this trend that, the Thai opportunities is to grow those medium-size proprietor to do ODM and Thai big-size factories to go for medium, medium-high with retail branding that government will support [to leap for this technological transfer from the multinational company].

AU3 foresaw that Thailand has a tremendous amount of hidden labor in the field as the gems industry successfully utilizes people from the agrarian society around Thailand. Thailand used to be the world's cubic zirconia producer and lost this industry to China when the VAT and WHT cut off the production value chain activities. The stone cutting activities which are a household industry were drying up as the VAT has to pay every junction of goods transferred. Most of the traders went underground

and caused problems for the jewelry industry on proper document declaration as stated earlier. AU1 supported to revitalize this system again to draw people from the fields to the industry doing side-line works after work or in the off season. This activity would help to retain people at their homes and prevent internal labor migration. On top of that, farmers have extra income to support their families.

Conclusion

The Opportunities of the gems and jewelry industry are "Having huge hidden labor reserve in agricultural and horticultural sectors were successfully utilized from the past of cubic zirconia cutting prior to the VAT regime." The marketing and government support group points were deleted from the equation temporarily in this sectional analysis context. The ASEAN and domestic markets are down at this moment due to the world recession and the free trade agreements (FTA) are having many technical problems to conform in order to utilize the tax privileges. This FTA will be discussed in the part of strategic recommendation under the positioning analysis. Finally, the technology transfer from the multi-national companies shifting their production base is not having immediate effects but needs a longer period to digest and learn. Thus, this point does not appear on the list.

Summary of the threats

Unlike the interpretation direction of Opportunities, the Threats in this context are any potential factors or circumstances that may harm or attack the very existence of the Thai gems and jewelry industry, even such adverse effects might have produced more or less effect to the Thai country competitors. In addition, the occurrence of such phenomena may from either what the Thai industry is not adequately performing or its competitors outperform the Thais. There are three major points on the problem caused roots summarized from the four headings, e.g., marketing, competitor and competition, government supports, and raw materials showing in tabular form on the next page.

The point shall be reiterated once more is that government support is one of the important driving forces of this fragmented gems and jewelry industry. GITR told us that many government offices are involved in promoting the industry but they lack integrated and collaborative plans among government offices. This kind of problem has been addressed by OIE1 since 2002 on the section of Weaknesses. However, this

type of problem apparently remains. Needless to say the policy formulation from a wrong assumption may have done more harm than good. In sum, there is no streamlining of the government policies towards the industry based on two levels of the government policy analysis. Firstly, the researcher did not find concrete collaborative policy implementation and thus joint administration at the policy level among the two government ministries: the Ministry of Industry and Ministry of Commerce. Secondly, each of the government offices under different ministerial supervision are doing their own research to suit and thus serve their organizational goals being assigned by their work functions. Even though the OIE3, SMER and GITR are sharing the same mission of promoting Thailand becoming a world center, but there is apparently no collaborative working committee among the three offices knitting their policies supplementing to each other at the level of implementation or action plans. It is worthwhile to mention that a joint committee at the level of action plans would yield a high level of policy implementation effectiveness by having quick responses collectively of each government office to the industry needs in changing situations on timely basis. The country competitors that normally possess raw materials of their own precious stones are effectively having highly integrative government support work plans specifically to restrict export control of the raw materials flow to Thailand. OIE2 has addressed these two points in its study.

Table 14. Summary of the 5 main researches on the Industry threat from their SWOT Analysis (4)

Summary-threat	**Research year**
1. Marketing Group:	
World economic and economics at major countries slowdown	2002, 2012
Facing non-tariff barriers by major market countries	2011, 2013
2. Competitor and Competition Group:	
Quick development in production technology in competitor countries	2002, 2011

Table 14. (Continue)

Summary-threat	Research year
Lack of labor and high wages drive to shift on production base	2002, 2012, 2013
Fiece competion and quick development in competitor countries	2010, 2012
Emergent of new competitor countries e.g. Vietnam and Indonesia	2012
Highly integrated government support work plan in competitor countries	2010
3. Government Support Group:	
Lack of integrated and collaborative plans among government offices	2013
4. Raw Material Group:	
Raw materials prices are highly fluctuated	2012, 2013
Strictly export control at RM source countries restricted Thai importation on RM	2010

The level of competition at the world scene has become fierce and intense as there are more new faces emerging to the world market, e.g., Vietnam and Indonesia. These two countries have plenty of labor supplies which are crucial at most to the labor intensive industry while the Thais have done badly where the minimum wages were abruptly increased across the board by the popular policies at the situation of the shortage of labor supply. The threats of a shifting production base has long been detected by the OIE1 and become more intense as repeatedly reported recently by SMER and GITR. It is interesting to note that the world renowned Tiffany and Co. of New York chose to locate its diamond cutting and jewelry facilities in Phnom Penh, Cambodia over Thailand. More international companies have relocated their production facilities in the neighboring countries of Thailand and brought with them their first class production technology to the locals. This is the same fashion of how the Thais are acquiring their skills on the first proprietary of design and production

technology. This situation will accelerate at a rapidly gaining pace of their overall skills development and thus drawing more new foreign investors to their countries where the factor of production is supporting their growth. This theme of ever-lasting circle does not in any ways benefit the Thais losing position. The three recent researches during the period of 2010-13 is subscribed in this argument.

Admittedly, gems and jewelry are luxury products and people tend to rationally cut down their spending on these items once they are facing decisions to choose against the four necessities. The world economic crisis or economic slowdown in major markets is always troublesome to the gems and jewelry export sales. The order cut down by the importers is immediate which responds to sharp consumer spending cuts. The OIE1 and SMER have reminded us of the economic crises in 2002 and 2012 in the US market which is the single biggest export destination for Thailand. Under the prescribed circumstances, the troubled countries are naturally imposing non-tariff barriers over the Thais exports of this kind as considered as "less necessary items" where they have to honor their ratification to the WTO. The reduction of GSP by either the USA or EU is one of the examples of this non-tariff barrier.

Once again, some points were excluded from the summary. Firstly, the statement by OIE3 said, "lack of continuously promoting the Thai product image at the major and new market" is not relevant to the Threats. Secondly, there is no concrete evidence to the claim that the economic crisis drives consumer consumption from fine jewelry to costume jewelry as stated by OIE2. Based on the researcher's experience, the confirmed orders for the last 3 years are gold items switched to silver jewelry due to the hike of the gold price but I have not experienced the phenomenon of a drastic change from fine jewelry to costume jewelry. Lastly, the researcher dropped the point "inconsistent supports from government sector, e.g., measurement to waive the VAT on rough stone import" raised by OIE3 which is only one pending issue at the time and is already resolved compared to the many achievable issues. This point contradicts the Opportunities stated by OIE2, SMER and GITR where the three researches are prescribed vice versa.

Findings

AU1 addressed that one of the most important threat is the uncertainty of the government policy direction towards the gems and jewelry industry as far as the matter of labor resource allocation policy and industry encouragement policy are concerned. The labor force is draining from one industry to others under the gravity of income offer would push this small fragmented industry into deeper trouble of a labor shortage. This is in contrast with country competitors lifting non-trade barriers to protect their natural resources specifically the stones to freely flow to Thailand in conjunction with some Thais going aboard to teach the know-how to competitor countries. It is speculated that if there is enough trade traffic domestically, they would not have to do so. Be that as it may, this event erodes the foundation of being the world gems center and eventually will definitely hit the jewelry industry hard due to raw material shortages. While the existence of a gems center has been challenged, the marketing and distribution changes resulting from high technological development are now squeezing both Thai market shares and margins as AG1 and AU2 addressed this adverse situation.

Conclusion:

The Threats of the gems and jewelry industry are “Current tax system obstruct to the stone supply inflow while gem source countries lift up non-tariff restriction and other world gem centers aggressively seizes the stone supply by their government strong supports.” Some of the deleted points relating to the world market conditions are raw material prices are highly fluctuated and the changing marketing and distribution channels resulting from high technology, as these are what everyone in the industry has to face rather than only the Thai position. The emergence of new competitor countries is now proven no threats but the threats from other world gems centers remain.

Conclusion:

The mission of this chapter is to discuss the findings in order to reach a conclusion is accomplished. The essence of situation analysis in the form of the SWOT analysis is studied through document studies updated with the new findings and adjusted by micro-analysis factors discovered from the research findings. This suggests for a final draft of the refined analysis to recommend the strategic

direction by the TOWS matrix in the next chapter. This policy guideline will be accounted for in the supporting policies derived from the study of strategic recommendations of the fragmented market structure which has been thoroughly discussed in the positioning analysis at the beginning of this chapter, where the two sub-questions on the world gems and jewelry market structure and the Thai industry position were answered. Importantly, the first two research questions are also explained as the heart of the issue that the gems and jewelry industry is predominated by SMEs and operates OEM business activities by subcontracting. The micro-analysis implications have been taken into account for considering the above SWOT analysis for competitive capability development. Lastly, there remain two sections from the research about the findings: the participants' recommendations and the ideal situations of the Thai gems and jewelry industry to the world which are discussed together with strategic recommendations in the next chapter to answer the third research question, "What are the strategic recommendations to develop competitive capability formulated from the macro and micro-analysis to promote the Thai gems and jewelry industry to achieve sustainable growth?".

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APPENDIX

APPENDIX 1

แผนแม่บทการพัฒนาอุตสาหกรรมไทย พ.ศ.2555-2574

- อุตสาหกรรมอัญมณีและเครื่องประดับ

ตารางที่ 17 ทิศทางและปัญหาอุปสรรคในการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับ

ทิศทางการพัฒนาของอุตสาหกรรมอัญมณีและเครื่องประดับโลก	ทิศทางการพัฒนาของอุตสาหกรรมอัญมณีและเครื่องประดับไทย
1. ทวีปเอเชียจะกลายเป็นศูนย์กลางในการผลิตอัญมณีและเครื่องประดับที่สำคัญของโลก รวมถึงการเป็นแหล่งค้าขายที่สำคัญแหล่งใหญ่ของโลก 2. มีการกระจุกตัวของผู้ผลิตเครื่องประดับอยู่ในประเทศจีน อินเดีย และประเทศไทย แบ่งประเภทตามลักษณะของสินค้า 1. ประเทศจีน และอินเดีย จะเป็นแหล่งผลิตเครื่องประดับที่มีมูลค่าไม่สูงมากนัก ขาดความประณีตชั้นสูง 2. ประเทศไทยจะเป็นแหล่งผลิตเครื่องประดับที่เหมาะสำหรับตลาดบน ซึ่งมีความประณีตและมีลวดลายและการออกแบบที่เป็นเอกลักษณ์เฉพาะตัว และมีมูลค่าสูง 3. ประเทศศรีลังกา พม่า และบราซิล ซึ่งเป็นประเทศที่มีทรัพยากรทางด้านวัตถุดิบจำนวนมาก จะมีการเข้าไปลงทุนเพื่อสำรวจและนำเอาทรัพยากรและวัตถุดิบอัญมณีมาใช้ประโยชน์ และจะมีการพัฒนาโครงสร้างพื้นฐานเพื่อยกระดับอุตสาหกรรมอัญมณีและเครื่องประดับในอนาคต 4. สินค้าและผลิตภัณฑ์ มีการพัฒนาไปสู่สินค้าและผลิตภัณฑ์ที่มีความประณีตสูง มีการออกแบบที่เป็นเอกลักษณ์เฉพาะตัว และเหมาะสมสำหรับการใช้งาน และชีวิตประจำวันที่มีความแตกต่างกัน 5. ตลาด Micro Trend สำหรับลูกค้าเฉพาะกลุ่มตามเพศ อายุ สถานะทางสังคม เริ่มมีบทบาทมากขึ้นในโลกปัจจุบัน ซึ่งส่งผลให้เกิดการพัฒนาสินค้าประเภทใหม่ๆ มากยิ่งขึ้น	1. ประเทศไทยตั้งเป้าหมายการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับในอนาคต คือการเป็น "ศูนย์อัญมณีและเครื่องประดับโลกภายในปี พ.ศ. 2557" 2. เน้นการพัฒนาในสินค้าระดับกลางถึงระดับบน ที่ให้ความสำคัญกับการใช้ความประณีตและมีเอกลักษณ์เฉพาะตัว 3. ส่งเสริมและประชาสัมพันธ์ให้ประเทศไทยเป็นศูนย์กลางการผลิตสินค้าของเอเชียและโลก เพื่อเป็นการดึงให้ผู้ผลิตสินค้าอัญมณีและเครื่องประดับขนาดใหญ่มาตั้งฐานการผลิตภายในประเทศไทย 4. ประเทศไทยจะมีตราสินค้าที่เป็นเอกลักษณ์ของประเทศ โดยเป็นศูนย์กลางของตราสินค้าพลอยไทย 5. พัฒนาภาพลักษณ์ของประเทศให้เป็นผู้ที่สามารถออกแบบสินค้าให้มีเอกลักษณ์เฉพาะตัว และสามารถเป็นผู้กำหนดแนวโน้มการเปลี่ยนแปลงของแฟชั่นได้ 6. เป็นศูนย์กลางการค้าขายแลกเปลี่ยนสินค้าอัญมณีและเครื่องประดับของโลก โดยสามารถเป็นแหล่งการค้าขายขนาดใหญ่ของลงมาจากฮ่องกง 7. มีโครงสร้างพื้นฐานด้านต่างๆ เช่น ระบบภาษีศุลกากร และระบบโลจิสติกส์ สามารถรองรับการเป็นแหล่งค้าขายอย่างเสรีได้ในอนาคต
ปัญหาและอุปสรรค	
1. ขาดแคลนวัตถุดิบภายในประเทศ 2. ขาดการพัฒนาการออกแบบรูปแบบการเจียระไนและการผลิตเครื่องประดับในรูปแบบใหม่ๆ 3. ขาดระบบการถ่ายทอดวิธีการเผาพลอย และการเจียระไนพลอยอย่างมีประสิทธิภาพ 4. ไม่สามารถผลิตเครื่องประดับในปริมาณมากได้ เนื่องจากพฤติกรรมผู้บริโภคเปลี่ยนอย่างรวดเร็ว 5. ขาดการสนับสนุนทางด้านการหาตลาดใหม่ๆ และการประชาสัมพันธ์ในงานแสดงสินค้าใหญ่ๆ 6. ขาดการส่งเสริมภาพลักษณ์ของประเทศไทยทางด้านการเป็นศูนย์กลางอัญมณีและเครื่องประดับที่ชัดเจน 7. ขาดการยอมรับมาตรฐานพลอยสีของประเทศไทยในระดับนานาชาติ 8. ขาดแคลนแรงงานเผาพลอยและเจียระไนพลอยที่มีทักษะฝีมือในระดับสูง และมีการส่งออกแรงงานไปยังประเทศที่เป็นคู่แข่งของประเทศไทย 9. ขาดแคลนปริมาณ และคุณภาพของนักออกแบบ ที่ได้รับการยอมรับจากต่างประเทศ 10. ขาดนโยบายการพัฒนาสินค้าที่เหมาะสมในแต่ละรายสินค้า มักเน้นการพัฒนาในภาพรวม 11. ระบบภาษีศุลกากรการนำเข้าสินค้าและวัตถุดิบมีความยุ่งยาก ซับซ้อน และไม่เอื้อต่อการพัฒนาการเป็นศูนย์กลางการค้าขายอัญมณีและเครื่องประดับ 12. บุคลากรของภาครัฐมีการปรับเปลี่ยนบ่อยเกินไป 13. ขาดการบูรณาการระหว่างหน่วยงานแต่ละฝ่ายที่มีส่วนเกี่ยวข้อง	

อุตสาหกรรมอัญมณีและเครื่องประดับเป็นอุตสาหกรรมที่มีความสำคัญต่อหลายประเทศทั่วโลก เนื่องจากมีมูลค่าของกิจกรรมทางเศรษฐกิจ ไม่ว่าจะเป็นมูลค่าการส่งออก และมูลค่าการนำเข้าวัตถุดิบและสินค้าอัญมณีและเครื่องประดับในจำนวนที่สูง และยังมีทิศทางการขยายตัวที่ดีอย่างต่อเนื่อง โดยในปี 2551 นั้นมูลค่าการส่งออกสินค้าอัญมณีและเครื่องประดับมีมูลค่าทั้งหมดประมาณ 309.8 พันล้านดอลลาร์สหรัฐ โดยมีทวีปเอเชียเป็นผู้ส่งออกหลัก ด้วยมูลค่าประมาณ 120 พันล้านดอลลาร์สหรัฐ โดยสินค้าหลักของอุตสาหกรรมอัญมณีและเครื่องประดับ ได้แก่ เพชร พลอย ไข่มุก และเครื่องประดับเงิน ทอง และแพลตตินัม ซึ่งมีสหรัฐอเมริกา เบลเยียม อิสราเอล ฮ่องกง แอฟริกาใต้ และสหรัฐอาหรับเอมิเรตส์ เป็นประเทศที่เป็นผู้นำของอุตสาหกรรม

นอกจากนี้ยังเป็นอุตสาหกรรมที่ก่อให้เกิดการสร้างงาน และสร้างรายได้ให้แก่ประชากรของแต่ละประเทศได้อย่างมาก เนื่องจากเป็นอุตสาหกรรมที่ใช้แรงงานคนเป็นหลักในการผลิตและกระบวนการอื่นภายในอุตสาหกรรม

และยังใช้องค์ความรู้ ทักษะฝีมือ ความเชี่ยวชาญเป็นปัจจัยสำคัญในการผลิต ซึ่งจะก่อให้เกิดการพัฒนาทางด้านทุนมนุษย์อย่างยั่งยืน

ทิศทางของอุตสาหกรรมอัญมณีและเครื่องประดับในอนาคตนั้น จะมีการเคลื่อนย้ายแหล่งผลิตและศูนย์กลางการค้าและการแลกเปลี่ยนจากทวีปยุโรป มาเป็นทวีปเอเชียมากขึ้น โดยจะมีการกระจุกตัวของแหล่งผลิตอยู่ที่ประเทศจีน และประเทศอินเดีย เนื่องจากเป็นประเทศที่มีขนาดใหญ่ มีการขยายตัวของประชากรในวัยทำงานซึ่งเป็นกลุ่มแรงงานขนาดใหญ่ที่มีราคาถูก มีแหล่งวัตถุดิบภายในประเทศ อีกทั้งยังมีความต้องการ และชนชั้นกลางที่มีกำลังในการจับจ่ายใช้สอยมากขึ้น ซึ่งเป็นตลาดขนาดใหญ่รองรับ อย่างไรก็ตาม อัญมณีและเครื่องประดับที่มีฐานการผลิตในประเทศจีน และประเทศอินเดียนั้น ส่วนใหญ่จะเป็นกลุ่มของสินค้าที่อยู่ในระดับล่างถึงระดับกลาง ซึ่งเป็นกลุ่มสินค้าที่มีราคาไม่สูงนัก ขาดความประณีต และขาดเอกลักษณ์เฉพาะตัว โดยเป็นกลุ่มสินค้าที่เน้นการผลิตในปริมาณมาก

ประเทศไทยเป็นแหล่งผลิตอัญมณีอีกแห่งหนึ่งที่มีความสำคัญของโลกในปัจจุบัน และต่อเนื่องไปถึงในอนาคต เนื่องด้วยความโดดเด่นทางด้านทักษะฝีมือแรงงานที่มีความประณีต มีลวดลายและการออกแบบที่เป็นเอกลักษณ์เฉพาะตัว โดยเฉพาะการผลิตเครื่องประดับในกลุ่มสินค้าระดับกลางถึงระดับบน นอกจากนี้ การขยายตัวของอุตสาหกรรมอัญมณีและเครื่องประดับ ส่งผลให้มีการเคลื่อนย้ายฐานการผลิตไปยังประเทศที่มีความพร้อมทางด้านวัตถุดิบ และต้นทุนทางด้านการผลิตต่ำกว่าเป็นสำคัญ ได้แก่ ความพร้อมทางด้านแรงงาน วัตถุดิบ และโครงสร้างสนับสนุนอุตสาหกรรมด้านอื่นๆ เป็นต้น โดยเฉพาะอย่างยิ่ง ประเทศที่ยังมีแหล่งวัตถุดิบภายในประเทศและมีศักยภาพในการพัฒนาโครงสร้างสนับสนุนอื่นๆ ได้ในอนาคต เช่น ประเทศ ศรีลังกา ประเทศพม่า ประเทศบราซิล ประเทศในทวีปแอฟริกาใต้ และประเทศในทวีปอเมริกาใต้ เป็นต้น ซึ่งจะได้รับความสนใจจากประเทศผู้ผลิตเครื่องประดับ ที่มีตราสินค้ามีชื่อเสียงในระดับนานาชาติ ในการเข้าไปลงทุนเพื่อสำรวจและนำเอาทรัพยากรและวัตถุดิบอัญมณีมาใช้ประโยชน์

ทางด้านสินค้าและผลิตภัณฑ์นั้น มีการพัฒนาไปสู่สินค้าและผลิตภัณฑ์ที่มีความประณีตสูง มีการออกแบบที่เป็นเอกลักษณ์เฉพาะตัว และเหมาะสมสำหรับการใช้งาน และชีวิตประจำวันที่มีความแตกต่างกัน โดยเฉพาะอย่างยิ่งการเกิดขึ้นของตลาด Micro Trend ที่เริ่มมีบทบาทมากขึ้นในโลกปัจจุบัน ส่งผลให้เกิดการพัฒนาสินค้าประเภทใหม่ๆ มากยิ่งขึ้น

ประเทศไทยในฐานะที่เป็นประเทศที่มีบทบาทและความสำคัญของอุตสาหกรรมอัญมณีและเครื่องประดับได้ให้ความสำคัญในการพัฒนาอุตสาหกรรม โดยมีการกำหนดเป้าหมายในการพัฒนาอุตสาหกรรมในอนาคต คือ การเป็น *"ศูนย์กลางอัญมณีและเครื่องประดับโลก"* โดยเน้นการพัฒนาในสินค้าระดับกลางถึงระดับบน ที่ให้ความสำคัญกับการใช้ความประณีตและมีเอกลักษณ์เฉพาะตัว และเน้นการพัฒนาและประชาสัมพันธ์ให้ประเทศไทยเป็นศูนย์กลางการผลิตสินค้าของเอเชีย รวมถึงของโลกด้วย เพื่อเป็นการดึงให้ผู้ผลิตสินค้าอัญมณีและเครื่องประดับขนาดใหญ่มาตั้งฐานการผลิตภายในประเทศไทย

ทางด้านการพัฒนาสินค้าของอุตสาหกรรมอัญมณีและเครื่องประดับนั้น ประเทศไทยจะเป็นศูนย์กลางของสินค้าที่มีตราสินค้าที่เป็นเอกลักษณ์ เช่น ตราสินค้าพลอยไทย เป็นต้น รวมไปถึงการพัฒนาภาพลักษณ์ของประเทศให้เป็นผู้ที่สามารถออกแบบสินค้าให้มีเอกลักษณ์เฉพาะตัว และสามารถเป็นผู้กำหนดแนวโน้มการเปลี่ยนแปลงของแฟชั่นได้

นอกจากนี้ ประเทศไทยยังเน้นการพัฒนาให้เป็นศูนย์กลางการค้าขายแลกเปลี่ยนสินค้าอัญมณีและเครื่องประดับของโลก โดยสามารถเป็นแหล่งการค้าขายขนาดใหญ่รองลงมาจากฮ่องกง ซึ่งมีโครงสร้างพื้นฐานด้านต่างๆ เช่น ระบบภาษีศุลกากร และระบบโลจิสติกส์ เป็นต้น สามารถรองรับการเป็นแหล่งค้าขายอย่างเสรีได้ในอนาคต อีกทั้งยังมีระบบต่างๆ และภาพลักษณ์ต่างๆ ที่สามารถสร้างความน่าเชื่อถือให้แก่ประเทศไทยได้ เช่น ภาพลักษณ์ของความโปร่งใส ซื่อสัตย์ และความเสรีทางด้านการทำธุรกิจ เป็นต้น

จากการกำหนดทิศทางแนวโน้มเป้าหมายของอุตสาหกรรมอัญมณีและเครื่องประดับของประเทศไทยดังที่ได้กล่าวไปแล้วนั้น จำเป็นอย่างยิ่งที่จะต้องมีแนวทางในการพัฒนาที่ชัดเจน และครอบคลุมในการแก้ไขปัญหาอุปสรรคและเงื่อนไขบางประการที่ส่งผลกระทบต่อการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับของประเทศไทยให้หมดไป รวมไปถึงแนวทางการพัฒนาต่อยอดอุตสาหกรรมให้มีความก้าวหน้า ทัดเทียมกับนานาชาติ และมีความยั่งยืนต่อไปในอนาคต โดยแนวทางการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับของไทยนั้น ได้กำหนดไว้ทั้งหมด 3 แนวทางหลักที่สำคัญ ได้แก่ (1) บริหารจัดการต้นทุนของวัตถุดิบเพื่อสร้างขีดความสามารถในการแข่งขันของอุตสาหกรรม (2) สร้างมาตรการด้านการตลาดเพื่อยกระดับภาพลักษณ์ของประเทศและยกระดับช่องทางด้านการตลาด และ (3) ยกระดับโครงสร้างสนับสนุนในการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับ โดยมีรายละเอียดของการพัฒนาแต่ละแนวทาง ดังต่อไปนี้

รูปที่ 15 สรุปแนวทางการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับ

(1) บริหารจัดการต้นทุนของวัตถุดิบเพื่อสร้างขีดความสามารถในการแข่งขันของอุตสาหกรรม

เพื่อเป็นการบริหารจัดการให้อุตสาหกรรมของประเทศไทยสามารถที่จะมีขีดความสามารถศักยภาพทางการแข่งขันให้แข่งขันกับต่างประเทศได้ โดยเน้นทางด้านการพัฒนาและบริหารจัดการต้นทุนทางวัตถุดิบเป็นสำคัญ โดยใช้มาตรการทางด้านภาษีเป็นเครื่องมือในการพัฒนา เน้นการพัฒนาและปรับปรุงมาตรการทางด้านภาษีเพื่อสนับสนุนให้มูลค่าของต้นทุนวัตถุดิบถูกลง โดยเน้นการพัฒนาใน 2 มาตรการหลักที่สำคัญ ได้แก่

- สนับสนุนมาตรการทางภาษี โดยการปรับปรุงและสร้างมาตรการทางด้านภาษีเพื่อสนับสนุนบรรยากาศของการค้าอัญมณีและเครื่องประดับ ซึ่งรวมถึงการกำหนดมาตรการทางด้านภาษีใหม่และการขยายระยะเวลาการดำเนินการใช้มาตรการภาษีที่ได้กำหนดขึ้นแล้ว
- บริหารจัดการวัตถุดิบ เพื่อสร้างระบบการหมุนเวียนวัตถุดิบภายในประเทศอย่างต่อเนื่อง โดยการสร้างความร่วมมือกับต่างประเทศ โดยเฉพาะประเทศพม่า กัมพูชา ซึ่งเป็นแหล่งวัตถุดิบที่สำคัญ รวมถึงการแลกเปลี่ยนความรู้ เทคโนโลยี และบุคลากรระหว่างกัน เพื่อเป็นการสร้างสัมพันธภาพที่ดี และบรรยากาศของความเป็นมิตรที่ดีระหว่างกัน

(2) สร้างมาตรการด้านการตลาดเพื่อยกระดับภาพลักษณ์ของประเทศและยกระดับช่องทางด้านการตลาด

เพื่อเป็นการสร้างชื่อเสียงให้แก่ประเทศไทยในการเป็นที่ยอมรับในระดับนานาชาติว่าเป็นศูนย์กลางของแหล่งการค้าขายและแลกเปลี่ยนอัญมณีและเครื่องประดับ และเป็นแหล่งผลิตเครื่องประดับที่มีคุณภาพ มี

ความประณีต และมีเอกลักษณ์ เพื่อให้สามารถพัฒนาขีดความสามารถทางการแข่งขันให้ทัดเทียมนานาชาติ โดยเน้นการพัฒนาใน 2 มาตรการหลักที่สำคัญ ได้แก่

- ยกระดับภาพลักษณ์ของประเทศไทย โดยเน้นการสร้างภาพลักษณ์และยกระดับอุตสาหกรรมไปสู่การสร้างตราสินค้าของผู้ประกอบการไทยให้มีชื่อเสียงในระดับนานาชาติ เพื่อเป็นการสนับสนุนให้ผู้ประกอบการสร้างตราสินค้าของตนเอง และสร้างชื่อเสียงให้กับประเทศไทยในฐานะที่เป็นแหล่งของการออกแบบและการผลิตสินค้าอัญมณีและเครื่องประดับที่มีเอกลักษณ์
- ส่งเสริมการตลาดต่างประเทศ โดยเน้นการยกระดับงานแสดงสินค้า Bangkok Gems ให้มีศักยภาพทัดเทียมกับระดับนานาชาติ เพื่อเป็นการพัฒนาและยกระดับช่องทางทางด้านการตลาดของประเทศไทยให้มีประสิทธิภาพมากยิ่งขึ้น และการประชาสัมพันธ์สินค้าอัญมณีและเครื่องประดับของประเทศไทย โดยการสร้างตราสัญลักษณ์ให้แก่สินค้าที่ได้มาตรฐานที่เป็นที่ยอมรับ เพื่อเป็นการสร้างความน่าเชื่อถือให้แก่ผู้บริโภคอีกด้วย โดยเฉพาะเรื่องราวของตราสินค้า “พลอยไทย (Ploi Thai)”

(3) ยกระดับโครงสร้างสนับสนุนในการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับ

ผลักดันให้มีการบูรณาการระหว่างหน่วยงานต่างๆ ในการบริหารจัดการทางด้านนโยบายที่เกี่ยวข้องและแนวทางการพัฒนาอุตสาหกรรมให้เป็นไปในทิศทางที่สอดคล้องกัน โดยเน้นการเชื่อมโยงและบูรณาการระหว่างหน่วยงานต่างๆ เพื่อให้มีการรวมศูนย์การบริหารจัดการ และการดูแลอุตสาหกรรมให้เป็นหนึ่งเดียว รวมถึงการรับรองมาตรฐานของอุตสาหกรรม เพื่อเพิ่มประสิทธิภาพในการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับของประเทศไทยให้ทัดเทียมกับต่างประเทศ โดยเน้นการพัฒนาใน 2 มาตรการหลักที่สำคัญ ได้แก่

- พัฒนาระบบบริหารจัดการ โดยเน้นการพัฒนาแนวทางให้มีการบูรณาการทิศทางการพัฒนาให้เป็นไปในทิศทางเดียวกัน และสอดคล้องกับแนวทางการพัฒนาในภาพรวมของประเทศ และมีแนวทางการพัฒนาที่ชัดเจนในช่วงระยะเวลา ได้แก่ การจัดตั้งหรือกำหนดหน่วยงานภาครัฐที่มีหน้าที่หลักในการดูแลอุตสาหกรรมโดยตรง และมีงบประมาณในการพัฒนา การกำหนดนโยบายและแนวทางในการพัฒนาอุตสาหกรรมที่ชัดเจนทั้งในระยะสั้น ระยะกลาง และระยะยาว เพื่อสร้างความเชื่อมั่นและเป็นแนวทางให้แก่ผู้ประกอบการ รวมถึงการกำหนดมาตรฐานและให้การรับรองมาตรฐานของคุณภาพโรงงานการผลิต เพื่อให้มีมาตรฐานเป็นที่ยอมรับของสากล และเพิ่มประสิทธิภาพการพัฒนาอุตสาหกรรมอัญมณีและเครื่องประดับของประเทศไทยอีกด้วย
- ส่งเสริมศักยภาพบุคลากร โดยเน้นการพัฒนาหลักสูตรการเรียนการสอน และพัฒนาบุคลากรในด้านต่างๆ โดยร่วมกับสถาบันการศึกษา โดยเฉพาะอย่างยิ่งสถาบันการอาชีวะศึกษา เช่น การพัฒนาหลักสูตรการเรียนการสอนที่เกี่ยวข้อง และหลักสูตรอบรมระยะสั้น การสร้างสถาบันการศึกษาที่ เน้นการพัฒนานักออกแบบ และการสนับสนุนให้มีการแข่งขันเพื่อพัฒนา

ทักษะทางด้านการออกแบบและการผลิตเครื่องประดับที่มีคุณภาพและเป็นที่ต้องการของตลาดโลก นอกจากนี้การให้การสนับสนุนเงินทุนแก่ผู้ประกอบการขนาดกลางและขนาดเล็ก เพื่อเป็นการสร้างเสริมศักยภาพของผู้ประกอบการให้แข่งขันกับต่างประเทศได้ โดยดำเนินการภายใต้สำนักงานคณะกรรมการส่งเสริมการลงทุน (BOI) และหน่วยงานอื่นที่เกี่ยวข้อง เช่น ธนาคารเพื่อการส่งออกแล้วนำเข้าแห่งประเทศไทย (EXIM Bank) ธนาคารพัฒนาวิสาหกิจขนาดกลางและขนาดย่อมแห่งประเทศไทย (SME Bank) เป็นต้น ซึ่งเป็นปัจจัยสนับสนุนที่สำคัญในการพัฒนาอุตสาหกรรม

การพัฒนาอุตสาหกรรมในแนวทางดังที่ได้กล่าวมาเบื้องต้นนี้ จำเป็นที่จะต้องมีการวางกรอบระยะเวลาในการพัฒนาที่ชัดเจน เพื่อให้เกิดความสอดคล้องและต่อเนื่องของการพัฒนาอุตสาหกรรมอย่างเป็นรูปธรรมและมีทิศทาง และตอบสนองต่อการเปลี่ยนแปลงของกระแสโลกาภิวัตน์ได้อย่างเหมาะสม เพื่อให้ประเทศไทยยังคงมีบทบาทในการเป็นผู้ผลิตหลักของโลก รวมถึงการจะพัฒนาไปสู่การเป็นศูนย์กลางการค้าอัญมณีและเครื่องประดับของโลกในอนาคตต่อไป

APPENDIX 2
AN INTERVIEW GUIDE

Research questions	Research objective	Expected information from participant	Interview questions
What is the nature of the Thai gems and jewelry business activity?	To explore the nature of Thai gems and jewelry business activity that may have been important factors influencing the direction of the industry development	The Thai current country position Relationship of the gems and jewelry industry Thailand position to the world and world market condition	Can we possibly say Thailand is the world gems and jewelry center nowadays? Why do you agree or not agree with this notion? Would the status of being the world gems center pose any effects to the position yet to achieve the world jewelry center and why is that? Many scholars claim that the world jewelry export turnovers are a the level over hundred trillion USD in comparison with the Thai jewelry export was a mere USD 7-8 billion, then there is room to grow for our Thai jewelry export. What do you think about this claim and do they have any countries dominate the world jewelry industry apart from the consumer
How is the nature of business activity providing micro-analysis for competitive capability development?	To seek for opinions on the notion of competitive capability in relations to the nature of business activity from various experienced parties who are having vested interests in the Thai gems and jewelry industry		

Research questions	Research objective	Expected information from participant	Interview questions
		World product mix and	countries?

What are the strategic recommendations to develop competitive capability formatted from the macro and micro-analysis to promote the Thai gems and jewelry industry achieving for sustainable growth?	To describe the proposed strategic recommendations from the study	the market share The Thai led-growth product	I trust you are a regular traveler on business trip. What do you reckon in percentage of different product types e.g. gold jewelry, diamond jewelry, gemstones jewelry, silver jewelry, base metal jewelry and so on displaying in a retailed shop or how frequent these type of product broadcasting on TV shopping network in USA and Europe? Do you notice what types of the majority of Thai jewelry are on display? What is the Thai jewelry product champion in your view and why is that?

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
		The Thai Strategic foundation	In your opinion, what is Thai jewelry position to the world in term of strategic-led growth when the Chinese is cost efficiency good to value jewelry; the Italian is for value creation through design development; the Hong Kong is good to value by

			ensuring customer confident and being free port?
		The Thai industry strength	In what way the Thais would be able to seize more market shares from its fellow competitors or what is really the strength of the Thai gems and jewelry industry?
		Weakness of the industry	When you say strength then there should be weakness. What are those Thai gems and jewelry industry weakness?
		Opportunity and threat	

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
		with supplement of the world market conditions	What do you foresee opportunity to grow as well threat to the existence to this gems and jewelry industry? What are current conditions of the international market and what factors you are worrying the most in our gems and jewelry export?
		Participants' Strategic recommendation from	What do you think the most urgent measurement and

		the SWOT analysis Nature of the Thai gems and jewelry business activity	strategies that shall be recommend to the government sectors to improve and encourage the gems and jewelry industry for its sustainable growth? What do you think the main characteristics of the gems and jewelry business differ from other
Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
		The business operation activity	business in what way and why is that? One thing is bothering me all the time is that proprietors in this gems and jewelry industry are mostly SMEs and household production base and they are working in commercial building and their home with less than 50 workers on premise while the big factories having more than 500 workers are only 380 from 15,777 proprietors basing on the UTCC census report in 2010, how do these SMEs take their order while they do not even speak English and certainly they do not join the gems & jewelry trade fair?

		Marketing activity Business	What are the channels of distribution for these SMEs?

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
		establishment and production activity	What is the genesis of these SMEs, how do they obtain production knowledge and skills and how do they commence their business specifically the funding?
		Product design necessity VS workmanship	There are a number of reports and researches indicated that people in the gems and jewelry industry are not good at product design and development particularly SMEs but having good workmanship. Do you think product design and development is the utmost essential for them in their business activity and why so?
		SMEs business growth and recommended strategy	Do you think these SMEs are having a chance to grow while many research reports indicate of their

			lack of production technology, product
Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
		for their business development The Thai gems and jewelry industry competitive capability Participants' Strategic recommendations for sustaining the industry growth	design and development, marketing network, and funding and what are your suggestions to government sectors to grow their business? What are reasons that foreign customer specifically select Thai jewelry for their inventory for sales or in a words, what are really competitive capability of the industry over other competitor countries? What are your suggested directions recommending to the government sector or implementing through your trade association to reinforcing this status of competitive capability to sustain in the future?

APPENDIX 3

INTERVIEW QUESTION TRANSLATED INTO THAI

Interview questions	คำถามสัมภาษณ์
Can we possibly say Thailand is the world gems and jewelry center nowadays? Why do you agree or not agree with this notion?	เราพอจะพูดได้ไหมว่า ประเทศไทยเป็นศูนย์กลางอัญมณีและเครื่องประดับโลก? คุณเห็นด้วยกับคำกล่าวนี้หรือไม่อย่างไร?
Would the status of being the world gems center pose any effects to the position yet to achieve the world jewelry center and why is that?	สถานภาพของการเป็นศูนย์กลางพลอยโลกมีผลต่อการก้าวเป็นศูนย์กลางเครื่องประดับโลกได้อย่างไร? และทำไมจึงเป็นเช่นนั้น?
Many scholars claim that the world jewelry export turnovers are a the level over hundred trillion USD in comparison with the Thai jewelry export was a mere USD 7-8 billion, then there is room to grow for our Thai jewelry export. What do you think about this claim and do they have any countries dominate the world jewelry industry apart from the consumer countries?	อาจารย์หลายท่านเสนอในงานวิจัยว่า ปริมาณการซื้อขายเครื่องประดับโลกอยู่ในระดับหลายแสนล้านดอลล่าห์ เมื่อเปรียบเทียบกับยอดส่งออกจิวเวลรี่ของไทยเพียงน้อยนิดที่ 7-8 พันล้านดอลล่าห์ ดังนั้น เรายังมีโอกาสในการเติบโตอีกมาก ท่านคิดว่าอย่างไร? และมีประเทศไหนในโลกที่ควบคุมการค้าในอุตสาหกรรมเครื่องประดับโลกนอกเหนือจากประเทศที่เป็นผู้บริโภค?
I trust you are a regular traveler on business trip. What do you reckon in percentage of different product types e.g. gold jewelry, diamond jewelry, gemstones jewelry, silver jewelry, base metal jewelry and so on displaying in a retailed shop or how frequent these type of product broadcasting on TV shopping network in USA and Europe?	ผมเชื่อว่าท่านเป็นนักเดินทางติดต่อธุรกิจต่างประเทศเป็นประจำอยู่แล้ว ท่านพอจะประมาณเป็นอัตราสัดส่วนร้อยละของสินค้าต่างประเภทกันอาทิ ทองรูปพรรณ เครื่องประดับเพชร เครื่องประดับพลอย เครื่องประดับเงิน เครื่องประดับโลหะ และอื่น ๆ วางโชว์ในร้านค้าปลีกหรือออกอากาศขายทางทีวี ในอเมริกา และยุโรป?

Interview questions	คำถามสัมภาษณ์
Do you notice what types of the majority of Thai jewelry are on display?	ท่านเห็นสินค้าเครื่องประดับของไทยส่วนใหญ่เป็นสินค้าประเภทใดที่วางขายอยู่?
What is the Thai jewelry product champion in your view and why is that?	สินค้าจิวเวลรี่ชนิดใดที่เป็นพระเอกของประเทศไทยในความเห็นของท่านและทำไม?
In your opinion, what is Thai jewelry position to the world in term of strategic-led growth when the Chinese is cost efficiency good to value jewelry; the Italian is for value creation through design development; the Hong Kong is good to value by ensuring customer confident and being free port?	ในความเห็นของท่าน สถานภาพของอุตสาหกรรมเครื่องประดับไทยในอุตสาหกรรมโลกมีจุดยืนอย่างไรเมื่อพิจารณาถึงกลยุทธ์ในการส่งเสริมการเติบโตเมื่อประเทศจีนเน้นการมีประสิทธิภาพการผลิตลดต้นทุน อิตาลีเน้นการสร้างมูลค่าเพิ่มผ่านงานดีไซด์ และฮ่องกงเน้นความคุ้มค่าเงินโดยสร้างความเชื่อมั่นให้กับลูกค้า และเป็นเมืองปลอดภาษี?
In what way the Thais would be able to seize more market shares from its fellow competitors or what is really the strength of the Thai gems and jewelry industry?	ในทางใดที่คนไทยจะสามารถยึดครองส่วนแบ่งตลาดได้มากยิ่งขึ้นจากประเทศคู่แข่ง หรือ อะไรคือจุดแข็งของอุตสาหกรรมอัญมณีและเครื่องประดับไทย?
When you say strength then there should be weakness. What are those Thai gems and jewelry industry weakness?	เมื่อคุณพูดถึงจุดแข็งแล้วก็ควรมีจุดอ่อน อะไรคือจุดอ่อนของอุตสาหกรรมอัญมณีและเครื่องประดับไทย?
What do you foresee opportunity to grow as well threat to the existence to this gems and jewelry industry? What are current conditions of the international market and what factors you are worrying the most in our gems and jewelry export?	อะไรที่ท่านมองเห็นเป็นโอกาสในการเติบโตและขณะเดียวกันอุปสรรคต่อการคงอยู่ของอุตสาหกรรมอัญมณีและเครื่องประดับไทย? สภาพการตลาดส่งออกพลอยและเครื่องประดับในปัจจุบันเป็นอย่างไร? และปัจจัยอะไรที่ท่านมีความกังวลใจที่สุด?

Interview questions	คำถามสัมภาษณ์
What do you think the most urgent measurement and strategies that shall be recommend to the government sectors to improve and encourage the gems and jewelry industry for its sustainable growth?	ท่านคิดว่าอะไรคือมาตรการด่วน และแผนยุทธวิธีท่านจะแนะนำให้ภาครัฐดำเนินการเพื่อปรับปรุงและส่งเสริมอุตสาหกรรมอัญมณีและเครื่องประดับไทยให้เติบโตอย่างยั่งยืน?
What do you think the main characteristics of the gems and jewelry business differ from other business in what way and why is that?	คุณคิดว่า ธุรกิจอัญมณีและเครื่องประดับมีลักษณะเด่นที่แตกต่างจากธุรกิจกิจประเภทอื่นอย่างไร และทำไมถึงเป็นเช่นนั้น?
One thing is bothering me all the time is that proprietors in this gems and jewelry industry are mostly SMEs and household production base and they are working in commercial building and their home with less than 50 workers on premise while the big factories having more than 500 workers are only 380 from 15,777 proprietors basing on the UTCC census report in 2010, how do these SMEs take their order while they do not even speak English and certainly they do not join the gems & jewelry trade fair?	มีสิ่งหนึ่งที่ข้องใจผมมาตลอดที่ผู้ประกอบในอุตสาหกรรมอัญมณีและเครื่องประดับเป็นผู้ประกอบการรายย่อยถึงระดับครัวเรือน ส่วนใหญ่มีคนงานไม่เกินห้าสิบคนทำงานในห้องแถวหรือบ้าน โดยมีผู้ประกอบการรายใหญ่ที่มีคนงานเกิน 500 คนเพียง 380 โรงงานจากผู้ประกอบการกว่า 15,77 รายจากการสำรวจของมหาวิทยาลัยหอการค้าไทยในปี 2010 แล้วเขารับออเดอร์จากไหนอย่างไร ในเมื่อเขาไม่แม้แต่พูดภาษาอังกฤษ และไม่ได้ไปออกงานแฟร์อัญมณีและเครื่องประดับแน่นอน?
What are the channels of distribution for these SMEs?	ผู้ประกอบการรายย่อยเหล่านี้มีช่องทางในการทำตลาดได้อย่างไร?

Interview questions	**คำถามสัมภาษณ์**
What is the genesis of these SMEs, how do they obtain production knowledge and skills and how do they commence their business specifically the funding?	จุดเริ่มต้นของ SMEs นี้มาจากไหนและเขามีความรู้ความสามารถในการผลิตมาจากไหนและเริ่มธุรกิจได้อย่างไร โดยเฉพาะอย่างยิ่งเงินทุนที่ใช้ในการดำเนินธุรกิจ?
There are a number of reports and researches indicated that people in the gems and jewelry industry are not good at product design and development particularly SMEs but having good workmanship. Do you think product design and development is the utmost essential for them in their business activity and why so?	มีรายงานและงานวิจัยมากมายระบุว่าคนในอุตสาหกรรมอัญมณีและเครื่องประดับ โดยเฉพาะ SMEs ทั้งหลายอ่อนในเรื่องการออกแบบสินค้า แต่มีฝีมือดีในการผลิตสินค้าที่ประณีต คุณคิดว่า การออกแบบเป็นปัจจัยที่สำคัญที่สุดของการประกอบธุรกิจของเหล่า SMEs หรือไม่อย่างไร?
Do you think these SMEs are having a chance to grow while many research reports indicate of their lack of production technology, product design and development, marketing network, and funding and what are your suggestions to government sectors to grow their business?	คุณคิดว่า SMEs เหล่านี้มีโอกาสในการเติบโตในเชิงธุรกิจมาน้อยเพียงใดในเมื่อขาดแคลนความสามารถในเรื่องของเทคโนโลยีการผลิต การออกแบบสินค้าและพัฒนาผลิตภัณฑ์ เครือข่ายการตลาด และเงินทุน ดังที่งานวิจัยหลายสำนักได้รายงานผลการวิจัยมา และคุณมีข้อเสนอแนะในการพัฒนาธุรกิจ SMEs นี้ต่อภาครัฐอย่างไร?
What are reasons that foreign customer specifically select Thai jewelry for their inventory for sales or in a words, what are really competitive capability of the	อะไรคือเหตุผลหลักที่ลูกค้าต่างชาติเจาะจงเลือกเครื่องประดับไทยไปวางจำหน่าย หรืออีกนัยหนึ่ง อะไรคือความสามารถของไทยที่ประเทศคู่แข่งไม่สามารถทำได้หรือทำได้ดีเท่ากับเรา?

Interview questions	**คำถามสัมภาษณ์**
industry over other competitor countries? What are your suggested directions recommending to the government sector or implementing through your trade association to reinforcing this status of competitive capability to sustain in the future?	 ท่านมีแนวทางอย่างไรในการที่จะเสนอภาครัฐหรือดำเนินการผ่านสมาคมของท่านในการเสริมสร้างความสามารถในการแข่งขันให้ยั่งยืนต่อไปในอนาคต?

APPENDIX 4
GROUPING GUIDELINE TABLE

Research questions	Research objective	Expected information from participant	Interview questions
What are the World Gems and Jewelry Industry and the Thai Gems and Jewelry industry status?	To explore the nature of World Gems and Jewelry Industry and positioning of Thai Gems and Jewelry Industry to the World Gems and Jewelry Industry To describe relationship of the Thai Gems Industry and Thai Jewelry Industry and how the two industries are for one another in what ways.	The Thai current country position Relationship of the gems and the jewelry industry Thailand position to the world and world market condition	Can we possibly say Thailand is the world gems and jewelry center nowadays? Why do you agree or not agree with this notion? Would the status of being the world gems center pose any effects to the position yet to achieve the world jewelry center and why is that? Many scholars claim that the world jewelry export turnovers are a the level over hundred trillion USD in comparison with the Thai jewelry export was a mere USD 7-8 billion, then there is room to grow for our Thai jewelry export. What do you think about this claim and do they have any countries dominate the world jewelry industry apart from the consumer countries?

Research questions	Research objective	Expected information from participant	Interview questions

		World product mix and the market share The Thai led-growth product The Thai Strategic foundation	I trust you are a regular traveler on business trip. What do you reckon in percentage of different product types e.g. gold jewelry, diamond jewelry, gemstones jewelry, silver jewelry, base metal jewelry and so on displaying in a retailed shop or how frequent these type of product broadcasting on TV shopping network in USA and Europe? Do you notice what types of the majority of Thai jewelry are on display? What is the Thai jewelry product champion in your view and why is that? In your opinion, what is Thai jewelry position to the world in term of strategic-led growth when the Chinese is cost efficiency good to value

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
			jewelry; the Italian is for value creation through design development; the Hong Kong is good to value by ensuring customer confident and being free port?

What is the Thai Gems and Jewelry Industry position to the World Gems and Jewelry Industry?	To update SWOT analysis of the Thai Gems & Jewelry Industry to the world from pilot research on the five researches summarizing SWOT in form of time series analysis 2002-13 and updated by this 2015 research paper	The Thai industry strength Weakness of the industry Opportunity and threat with supplement of the world market conditions	In what way the Thais would be able to seize more market shares from its fellow competitors or what is really the strength of the Thai gems and jewelry industry? When you say strength then there should be weakness. What are those Thai gems and jewelry industry weakness? What do you foresee opportunity to grow as well threat to the existence to this gems and jewelry

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
			industry?What are current conditions of the international market and what factors you are worrying the most in our gems and jewelry export? What do you think the most urgent measurement and strategies that shall be recommend to the government
		Participants' Strategic recommendation from	

		the SWOT analysis	sectors to improve and encourage the gems and jewelry industry for its sustainable growth?
What is the nature of the Thai gems and jewelry business activity?	To seek for opinions on the notion of competitive capability in relations to the	Nature of the Thai gems and jewelry business activity	What do you think the main characteristics of the gems and jewelry business differ from other business in what way and why is that?

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
	nature of business activity from various experienced parties who are having vested interests in the Thai gems and jewelry industry	The business operation activity	One thing is bothering me all the time is that proprietors in this gems and jewelry industry are mostly SMEs and household production base and they are working in commercial building and their home with less than 50 workers on premise while the big factories having more than 500 workers are only 380 from 15,777 proprietors basing on the UTCC census report in 2010, how do these SMEs take their order while they do not even speak English and certainly they do not join the gems & jewelry trade fair?
How is the nature of business activity providing micro-analysis for competitive capability	To explore the nature of Thai gems and jewelry business activity that may have been important factors influencing		

development?	the direction of the industry development.	Marketing activity Business establishment and	What are the channels of distribution for these SMEs? What is the genesis of these SMEs, how do they

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
		production activity	obtain production knowledge and skills and how do they commence their business specifically the funding?
		Product design necessity VS workmanship	There are a number of reports and researches indicated that people in the gems and jewelry industry are not good at product design and development particularly SMEs but having good workmanship. Do you think product design and development is the utmost essential for them in their business activity and why so?
		SMEs business growth and recommended strategy for their	Do you think these SMEs are having a chance to grow while many research reports indicate of their lack of

		business	production technology, product design and development, marketing network, and

Research questions	**Research objective**	**Expected information from participant**	**Interview questions**
		development	funding and what are your suggestions to government sectors to grow their business?
What are the strategic recommendations to develop competitive capability formulated from the macro and micro-analysis to promote the Thai gems and jewelry industry achieving for sustainable growth?	To describe the proposed strategic recommendations from the study	The Thai gems and jewelry industry competitive capability Participants' Strategic recommendations for sustaining the industry growth	What are reasons that foreign customer specifically select Thai jewelry for their inventory for sales or in a words, what are really competitive capability of the industry over other competitor countries? What are your suggested directions recommending to the government sector or implementing through your trade association to reinforcing this status of competitive capability to sustain in the future?

APPENDIX 5

SUMMARY OF THE 5 MAIN RESEARCH SWOT ANALYSIS

Summary of the 5 main researches on the Industry STRENGTH from their SWOT ANALYSIS

	OIE 1 (2002)
1	เป็นตลาดค้าพลอยสีโลก
2	มีแรงงานฝีมือด้านการขึ้นรูปด้วยมือ
3	มีเทคโนโลยีเผาและเจียรนัยพลอย
4	มีคลัสเตอร์การผลิตอัญมณีและเครื่องประดับที่สมบูรณ์
5	เป็นศูนย์กลางท่องเที่ยวเอเชียแปซิฟิก
	OIE 2 (2010)
1	แรงงานมีฝีมือและความสามารถด้านการเจียระไนมีศักยภาพในการพัฒนาสูง
2	มีเทคโนโลยีด้านการเพิ่มมูลค่าพลอย
3	สินค้าอัญมณีและเครื่องประดับมีคุณภาพสูงเป็นที่ยอมรับ
4	มีสถาบันวิจัยอัญมณีและเครื่องประดับเป็นแลประดับโลกในกรรมการ LMHC
5	เป็นผู้ส่งออกเครื่องเงินติดอันดับหนึ่งในสามของโลก
	OIE 3 (2011)
1	มีเทคนิคการพัฒนาและเพิ่มมูลค่าผลิตภัณฑ์ที่เฉพาะด้าน
2	แรงงานมีทักษะและฝีมือสูงด้านการขึ้นรูปตัวเรือนและเจียระไน
3	เป็นศูนย์กลางด้านการผลิตและการค้าพลอยสีระดับโลก
4	มีการรวมกลุ่มเครือข่ายอย่างครบวงจรจากอุตสาหกรรมต้นน้ำถึงปลายน้ำ
	SMER (2012)
1	มีทักษะฝีมือแรงงาน
2	มีความเชี่ยวชาญการผลิตเครื่องประดับที่วิจิตรและเทคโนโลยีการเผาและเจียระไน
3	เป็นศูนย์กลางการค้าพลอยสีโลก
4	มีงานแสดงสินค้าด้านอัญมณีและเครื่องประดับ
5	มีการรวมตัวกันของผู้ผลิตและค้าอัญมณีและเครื่องประดับ
	GITR (2013)
1	มีความสามารถหุงพลอยที่มีเอกลักษณ์โดดเด่นจากคู่แข่ง
2	แรงงานมีทักษะฝีมือในอันดับโลกด้านการเจียระไนและฝังพลอยบนตัวเรือน
3	เป็นศูนย์กลางการค้าพลอยสีของโลก
4	มีความยืดหยุ่นในการผลิตโดยปรับรูปแบบตามแฟชั่นได้รวดเร็วและแบบเริ่มเป็นที่ยอมรับ
5	ชุมชนดั้งเดิมมีการพัฒนาเครื่องประดับที่มีลักษณะลวดลายเฉพาะตัว
6	มีงานแสดงสินค้าด้านเครื่องประดับอัญมณีระดับโลกเป็นช่องทางจัดจำหน่าย

	Summary--STRENGTH	Research Year
1	**หมวดแรงงาน:** มีแรงงานที่มีทักษะและฝีมือสูง	2002, 2010, 2011, 2012, 2013
2	**หมวดเทคโนโลยีการผลิต:** มีเทคโนโลยีการหุงพลอยและเจียระไนที่โดดเด่น	2002, 2010, 2011, 2012, 2013
	มีสถาบันวิจัยอัญมณีและเครื่องประดับเป็น LAB ระดับโลกในกรรมการ LMHC	2010
3	**หมวดการตลาด:** เป็นตลาดค้าพลอยโลก	2002, 2011, 2012, 2013
	มีงานแสดงสินค้าด้านอัญมณีเครื่องประดับเป็นช่องทางจัดจำหน่าย	2012, 2013
4	**หมวดการผลิต:** มีการรวมตัวเป็นเครือข่ายการผลิตที่ครบวงจร	2002, 2011, 2012
	สินค้าอัญมณีและเครื่องประดับมีคุณภาพสูงเป็นที่ยอมรับ	2010
	เป็นผู้ส่งออกเครื่องเงินติดอันดับหนึ่งในสามของโลก	2010
	มีความยืดหยุ่นในการผลิตโดยปรับรูปแบบตามแฟชั่นได้รวดเร็วและแบบเริ่มเป็นที่ยอมรับ	2013
5	เป็นศูนย์กลางท่องเที่ยวเอเชียแปซิฟิก	2002
	ชุมชนดั้งเดิมมีการพัฒนาเครื่องประดับที่มีลักษณะลวดลายเฉพาะตัว	2013
6		

Summary of the 5 main researches on the Industry WEAKNESS from their SWOT ANALYSIS (1)

OIE 1 (2002)

1 พึ่งพิงวัตถุดิบจากต่างประเทศ
2 พึ่งพิงการนำเข้าวัสดุอุปกรณ์ประกอบ (Findings)
3 แรงงานไทยมีอัตราค่าจ้างที่แพงกว่าค่าแรงในจีนและเวียดนาม
4 ภาพลักษณ์ของความไม่ซื่อสัตย์ของผู้ขายอัญมณี
5 หน่ายราชการที่เกี่ยวข้องขาดการประสานงานและการปฏิบัติงานเอื้อต่อการพัฒนาอุตฯ
6 เครือข่ายด้านการตลาดและระบบสินเชื่อระหว่างผู้ประกอบการไม่เข้มแข็งเหมือนอินเดีย

OIE 2 (2010)

1 ค่าแรงสูงกว่าคู่แข่งจีนและอินเดีย
2 วัตถุดิบ (พลอยและโลหะมีค่า) ต้องนำเข้าจากต่างประเทศ
3 แรงงานขาดความรู้ด้านวิชาการเจียระไน ผลผลิตจากโรงงานเล็กไม่ได้ขนาด
4 ขาดเทคโนโลยีและการวิจัยการหลอม หล่อ รีด ขึ้นรูป ชุบ โลหะมีค่า
5 ขาดแคลนนักออกแบบที่มีความคิดสร้างสรรค์และความสามารถระดับสากล
6 ขาดการพัฒนา Software เพื่อการออกแบบในประเทศ ซึ่งต้องนำเข้าจากต่างประเทศ
7 ห้องทดสอบ Trace elements มีน้อยไม่พอความต้องการ
8 ขาดการพัฒนารูปแบบการเจียระไนพลอยสี
9 การตลาดของไทยเป็นแบบตั้งรับมากกว่าตลาดเชิงรุก

OIE 3 (2011)

1 ขาดอุตสาหกรรมต้นน้ำต้องนำเข้าเพชร พลอย และทองคำ วัตถุดิบเกิดความไม่แน่นอน
2 ค่าแรงงานไทยสูงกว่าจีนและเวียดนาม อาจทำให้เกิดการย้ายฐานการผลิต
3 ขาดแรงงานฝีมือรองรับการพัฒนาอุตสหกรรม
4 ขาดการพัฒนาการลงทุนเทคโนโลยีการออกแบบและเจียระไนต่างจากอินเดียและยุโรป
5 ขาดการสนับสนุนอุตสาหกรรมที่เกี่ยวข้อง เช่น ชิ้นส่วน ตัวเรือน แม่พิมพ์ เครื่องจักร
6 สินค้าที่ผลิตในประเทศไทยเป็นการรับจ้างผลิตตามคำสั่งซื้อเป็นหลักทำให้ไม่สร้างสรรค์จุดเด่นสินค้าไทย และผู้บริโภคขาดการรับรู้ศักยภาพของสินค้าไทยทำให้ไม่สามารถขายสินค้าภายใต้ตราสินค้าไทย
7 ขาดการสนับสนุนทางการเงินให้แก่ผู้ประกอบการในการจัดตั้งกิจการเพราะอุตสาหกรรมนี้ต้องมีเงินในการลงทุนจำนวนมาก

SMER (2012)

1 ขาดแคลนวัตถุดิบภายในประเทศในเชิงพาณิชย์
2 ขาดแคลนแรงงานอย่างรุนแรง
3 ขีดความสามารถของแรงงานถดถอย
4 ปัญหาการใช้เครื่องจักรและเทคโนโลยี
5 ทักษะออกแบบสินค้าอัญมณีและเครื่องประดับ(ต่ำ)
6 ขาดแคลนชิ้นส่วน (Findings) ภายในประเทศ
7 ขาดแคลนการสนับสนุนด้านวิจัยและพัฒนา
8 ผู้ประกอบการรายเล็กขาดเงินทุนในการทำการตลาดด้วยตนเอง
9 ขาดทักษะในการสร้างแบรนด์ให้กับสินค้า

GITR (2013)

1 ขาดแคลนวัตถุดิบภายในประเทศต้องพึ่งพาการนำเข้าในระดับสูง และมีต้นทุนผลิตสูง
2 การออกแบบไทยส่วนใหญ่เป็นการลอกเลียนแบบของต่างประเทศมากกว่าคิดสร้างสรรค์
3 ผู้ประกอบการไทยขาดประชาสัมพันธ์ความโดดเด่นของสินค้าที่ถูกต้องและต่อเนื่อง
4 ไม่มีการพัฒนาเทคโนโลยีเครื่องจักรเป็นของตนเอง ทำให้จำกัดการพัฒนาผลิตภัณฑ์

Summary of the 5 main researches on the Industry WEAKNESS from their SWOT ANALYSIS (2)

	Summary--WEAKNESS	Research Year
1	**หมวดวัตถุดิบ:**	
	พึ่งพิงการนำเข้าวัตถุดิบจากต่างประเทศเช่น เพชร พลอย และโลหะมีค่า	2002, 2010, 2011, 2012, 2013
	พึ่งพิงการนำเข้าวัสดุอุปกรณ์ประกอบ (Findings)	2002
	ขาดการสนับสนุนอุตสาหกรรมที่เกี่ยวข้อง เช่น ชิ้นส่วน ตัวเรือน แม่พิมพ์ เครื่องจักร	2011
	ขาดแคลนชิ้นส่วน (Findings) ภายในประเทศ	2012
2	**หมวดแรงงาน:**	
	ค่าแรงไทยสูงกว่าคู่แข่งจีนและเวียดนาม อาจทำให้เกิดการย้ายฐานการผลิต	2002, 2010, 2011
	แรงงานขาดความรู้วิชาการทำให้ขีดความสามารถถดถอย	2010, 2012
	ขาดแคลนแรงงานรองรับการพัฒนาอุตสาหกรรม	2011, 2012
	ปัญหาการใช้เครื่องจักรและเทคโนโลยี	2012
3	**หมวดเทคโนโลยีการผลิต:**	
	ขาดเทคโนโลยีและการวิจัยการหลอม หล่อ รีด ขึ้นรูป ชุบโลหะมีค่า	2010
	ขาดการพัฒนา Software เพื่อการออกแบบในประเทศ ซึ่งต้องนำเข้าจากต่างประเทศ	2010
	ห้องทดสอบ Trace elements มีน้อยไม่พอความต้องการ	2010
	ขาดการพัฒนารูปแบบการเจียระไนพลอยสี	2010
	ขาดแคลนการสนับสนุนด้านวิจัยและพัฒนา	2012
	ไม่มีการพัฒนาเทคโนโลยีเครื่องจักรเป็นของตนเอง ทำให้จำกัดการพัฒนาผลิตภัณฑ์	2013
4	**หมวดการออกแบบผลิตภัณฑ์:**	
	ขาดแคลนนักออกแบบที่มีความคิดสร้างสรรค์และความสามารถระดับสากล	2010
	ขาดการพัฒนาการลงทุนเทคโนโลยีการออกแบบและ	2011

	เจียระไนต่างจากอินเดียและยุโรป	
	สินค้าที่ผลิตในประเทศไทยเป็นการรับจ้างผลิตตามคำสั่งซื้อ เป็นหลักทำให้ไม่สร้างสรรค์	2011
	จุดเด่นสินค้าไทย และผู้บริโภคขาดการรับรู้ศักยภาพของสินค้าไทยทำให้ไม่สามารถขายสินค้าภายใต้ตราสินค้าไทย	
	ทักษะออกแบบสินค้าอัญมณีและเครื่องประดับ (ต่ำ)	2012
	การออกแบบไทยส่วนใหญ่เป็นการลอกเลียนแบบของต่างประเทศมากกว่าคิดสร้างสรรค์	2013
5	**หมวดการตลาด:**	
	เครือข่ายด้านการตลาดและระบบสินเชื่อระหว่างผู้ประกอบการไม่เข้มแข็งเหมือนอินเดีย	2002
	การตลาดของไทยเป็นแบบตั้งรับมากกว่าตลาดเชิงรุก	2010
	ขาดทักษะในการสร้างแบรนด์ให้กับสินค้า	2012
	ผู้ประกอบการไทยขาดประชาสัมพันธ์ความโดดเด่นของสินค้าที่ถูกต้องและต่อเนื่อง	2013
6	**หมวดการเงิน:**	
	ขาดการสนับสนุนทางการเงินให้แก่ผู้ประกอบการในการจัดตั้งกิจการเพราะอุตสาหกรรมนี้ต้องมีเงินในการลงทุนจำนวนมาก	2011
	ผู้ประกอบการรายเล็กขาดเงินทุนในการทำการตลาดด้วยตนเอง	2012
7	**อื่น ๆ:**	
	ภาพลักษณ์ของความไม่ซื่อสัตย์ของผู้ขายอัญมณี	2002
	หน่ายราชการที่เกี่ยวข้องขาดการประสานงานและการปฏิบัติงานเอื้อต่อการพัฒนาอุตฯ	2002

Summary of the 5 main researches on the Industry OPPORTUNITY from their SWOT ANALYSIS

	OIE 1 (2002)
1	เป็นศูนย์กลางการค้าอัญมณีและเครื่องประดับที่สำคัญของโลก
2	ส่วนแบ่งตลาดยังน้อยสามารถขยายได้ โดยเฉพาะตลาดนักท่องเที่ยวในประเทศ
3	สภาพตลาดทางภูมิศาสตร์ใกล้จีนและตะวันออกกลางที่เป็นตลาดใหม่และใหญ่มาก
4	ตลาดสำหรับผู้บริโภคกลุ่มที่ยังไม่มีการทำตลาดภายในประเทศเช่นตลาดของที่ระลึก
5	ตลาดเปิดโอกาสเข้าหาผู้บริโภคโดยตรงเช่นการขายผ่านทางทีวีในประเทศ
6	ช่องทางจัดจำหน่ายใหม่ในการขายผ่านห้างสรรพสินค้าและห้างประหยัดและผู้ค้าปลีก
7	โอกาสการขยายตลาดทองรูปพรรณในประเทศยังมีอีกมากในภาวะดอกเบี้ยต่ำ

	OIE 2 (2010)
1	เป็นอุตสาหกรรมที่ได้รับการสนับสนุนจากภาครัฐอย่างสม่ำเสมอ
2	BOI ส่งเสริมให้นักลงทุนต่างชาติมาเปิดโรงงานรักษาสถานะศูนย์กลางค้าภูมิภาคได้
3	มีข้อตกลงทวิภาคีทำให้ขยายตลาดการค้า และเพิ่มโอกาสหาวัตถุดิบมากยิ่งขึ้น
4	มีโอกาสพัฒนาโครงสร้างอุตฯสู่ Trading base มากยิ่งขึ้นโดยผู้ประกอบการรายใหญ่
5	สถาบันวิจัยอัญมณีและเครื่องประดับมีบทบาทด้านการตลาดและส่งเสริมภาพลักษณ์อุตฯ

	OIE 3 (2011)
1	ไทยเป็นศูนย์กลางการท่องเที่ยวจึงส่งเสริมอุตฯในแง่รายได้และเป็นที่รู้จักมากขึ้น
2	เศรษฐกิจประเทศคู่ค้าเดิมฟื้นตัวจึงทำให้ส่งออกได้มากยิ่งขึ้น
3	โอกาสการขยายตลาดสู่ประเทศที่มีสัญญาทวิภาคีเป็นแต้มต่อประเทศคู่แข่ง

	SMER (2012)
1	แนวโน้มการขายตัวของตลาดภายในประเทศ
2	แนวโน้มการขายตัวของตลาดภายในประเทศอาเซียน
3	การเติบโตของตลาดใหม่ เช่น รัสเซีย
4	การเติบโตของตลาดหลัก เช่น จีน
5	แนวโน้มการปรับพฤษติกรรมของลูกค้าสู่การค้าออนไลน์
6	การเปิดเขตการค้าเสรี ในภูมิภาคต่าง ๆ
7	รัฐบาลเล็งเห็นความสำคัญของอุตสาหกรรมอัญมณีและเครื่องประดับมากขึ้น

	GITR (2013)
1	ไทยมีโอกาสเพิ่มส่วนแบ่งการตลาดในตลาดโลก
2	รัฐบาลเห็นความสำคัญของอุตสาหกรรมฯมากขึ้น โดยมีมาตรการสนับสนุนต่อเนื่อง
3	การเปิดตลาดการค้าเสรีทำให้อุตสาหกรรมเติบโต
4	มีอุตสาหกรรมสนับสนุนค่อนข้างเข้มแข็ง
5	มีหน่วยงานวิเคราะห์และตรวจสอบอัญมณีหลายแห่งเป็นที่ยอมรับระดับนานาชาติ

	Summary--OPPORTUNITY	Research Year
1	**หมวดการตลาด:**	
	ส่วนแบ่งตลาดยังน้อยสามารถขยายได้ โดยเฉพาะตลาดนักท่องเที่ยวในประเทศ	2002, 2011, 2013
	แนวโน้มการขายตัวของตลาดภายในประเทศ	2002(4), 2012(2)
	มีข้อตกลงทวิภาคีทำให้ขยายตลาดการค้า และเพิ่มโอกาสหาวัตถุดิบมากยิ่งขึ้น	2010, 2011
	การเติบโตของตลาดหลักและการฟื้นตัวทางเศรษฐกิจในตลาดหลัก	2011, 2012
	แนวโน้มการขายตัวของตลาดภายในประเทศอาเซียน และตลาดใหม่	2002, 2012(3), 2013
2	**หมวดภาครัฐสนับสนุน:**	
	เป็นอุตสาหกรรมที่ได้รับการสนับสนุนจากภาครัฐอย่างสม่ำเสมอและต่อเนื่อง	2010(2), 2012, 2013
	มีหน่วยงานวิเคราะห์และตรวจสอบอัญมณีหลายแห่งเป็นที่ยอมรับระดับนานาชาติ	2010, 2013
3	**อื่น ๆ**	
	เป็นศูนย์กลางการค้าอัญมณีและเครื่องประดับที่สำคัญของโลก	2002
	มีโอกาสพัฒนาโครงสร้างอุตฯสู่ Trading base มากยิ่งขึ้นโดยผู้ประกอบการรายใหญ่	2010
	มีอุตสาหกรรมสนับสนุนค่อนข้างเข้มแข็ง	2013

Summary of the 5 main researches on the Industry THREAT from their SWOT ANALYSIS

OIE 1 (2002)

1 การชลอตัวของเศรษฐกิจโลกโดยเฉพาะประเทศตลาดหลัก
2 การขาดแคลนแรงงานในประเทศไทย และการย้ายฐานการผลิตจากฮ่องกงไปจีน
3 ศรีลังกา และคู่แข่งพัฒนาเทคโนโลยีการเผาพลอยเพื่อเพิ่มคุณภาพพลอยของตน

OIE 2 (2010)

1 มีการแข่งขันช่วงชิงวัตถุดิบพลอยสีจากคู่แข่งรุนแรง
2 เศรษฐกิจตกต่ำทำให้เปลี่ยนบริโภคจากเครื่องประดับอัญมณีมาเป็นเครื่องประดับเทียม
3 การควบคุมการส่งออกจากแหล่งวัตถุดิบมากขึ้น จำกัดการนำเข้ามาในไทย
4 คู่แข่งมีการสนับสนุนอย่างเป็นเอกภาพจากภาครัฐด้านการผลิตและการตลาด

OIE 3 (2011)

1 ความไม่ต่อเนื่องในการสนับสนุนอุตสาหกรรมจากภาครัฐ
2 การแข่งขันที่รุนแรงจากค่าแรงถูก วัตถุดิบมีภายในประเทศ และพัฒนาการผลิตต่อเนื่อง
3 การพัฒนาคุณภาพพลอยอย่างต่อเนื่องของศรีลังกา ทำให้ลดการส่งพลอยก้อน
4 ประเทศคู่ค้าสำคัญนำมาตรการกีดกันที่ไม่ใช่ภาษีอากรมาใช้มากขึ้น
5 ภาพลักษณ์ของสินค้าไทยขาดการประชาสัมพันธ์ต่อเนื่องทั้งที่ตลาดหลักและตลาดใหม่

SMER (2012)

1 การชลอตัวของเศรษฐกิจโลก
2 การเติบโตอย่างก้าวกระโดดและการพัฒนาอุตสาหกรรมของประเทศคู่แข่ง
3 การเกิดประเทศคู่แข่งหน้าใหม่ เช่น เวียดนาม และอินโดนีเซีย
4 การผันผวนของราคาวัตถุดิบ

GITR (2013)

1 หน่วยงานภาครัฐขาดการประสานงาน และบูรณาการแผนการปฏิบัติงาน
2 วัตถุดิบมีราคาผันผวน อาทิ ราคาทองคำ
3 แรงงานไทยมีค่าจ้างที่แพงเมื่อเทียบกับเวียดนามและจีน ทำให้เกิดการย้ายฐานการผลิต
4 ประเทศคู่ค้าสำคัญทยอยปรับลดสิทธิพิเศษทางการค้า GSP และเพิ่มมาตรการมิใช่ภาษี

	Summary--THREAT	Research Year
1	**หมวดการตลาด:**	
	การชลอตัวของเศรษฐกิจโลก และประเทศคู่ค้าหลัก	2002, 2012
	การใช้มาตรการที่มิใช่ภาษีของประเทศคู่ค้าหลัก	2011, 2013
	เศรษฐกิจตกต่ำทำให้เปลี่ยนบริโภคจากเครื่องประดับอัญมณีมาเป็นเครื่องประดับเทียม	2010
	ภาพลักษณ์ของสินค้าไทยขาดการประชาสัมพันธ์ต่อเนื่องทั้งที่ตลาดหลักและตลาดใหม่	2011
2	**หมวดคู่แข่งและการแข่งขัน:**	
	คู่แข่งพัฒนาเทคโนโลยีการผลิต และพัฒนาพลอย	2002, 2011
	ขาดแคลนแรงงาน ค่าแรงสูง ทำให้ย้ายฐานการผลิต	2002, 2012, 2013
	การแข่งขันรุนแรง และคู่แข่งพัฒนาขึ้นรวดเร็ว	2010, 2012
	การเกิดประเทศคู่แข่งหน้าใหม่ เช่น เวียดนาม และอินโดนีเซีย	2012
	คู่แข่งมีการสนับสนุนอย่างเป็นเอกภาพจากภาครัฐด้านการผลิตและการตลาด	2010
3	**หมวดการสนับสนุนจากรัฐ:**	
	ความไม่ต่อเนื่องในการสนับสนุนอุตสาหกรรมจากภาครัฐ	2011
	หน่วยงานภาครัฐขาดการประสานงาน และบูรณาการแผนการปฏิบัติงาน	2013
4	**หมวดวัตถุดิบ:**	
	การผันผวนของราคาวัตถุดิบ	2012, 2013
	การควบคุมการส่งออกจากแหล่งวัตถุดิบมากขึ้น จำกัดการนำเข้ามาในไทย	2010

Summary of the 5 main researches on the Industry STRENGTH from their SWOT ANALYSIS (1)

	Summary--STRENGTH	Research Year
1	**หมวดแรงงาน:** มีแรงงานที่มีทักษะและฝีมือสูง	2002, 2010, 2011, 2012, 2013
2	**หมวดเทคโนโลยีการผลิต:** มีเทคโนโลยีการหุงพลอยและเจียระไนที่โดดเด่น	2002, 2010, 2011, 2012, 2013
	มีสถาบันวิจัยอัญมณีและเครื่องประดับเป็น LAB ระดับโลกในกรรมการ LMHC	2010
3	**หมวดการตลาด:** เป็นตลาดค้าพลอยโลก	2002, 2011, 2012, 2013
	มีงานแสดงสินค้าด้านอัญมณีเครื่องประดับเป็นช่องทางจัดจำหน่าย	2012, 2013
4	**หมวดการผลิต:** มีการรวมตัวเป็นเครือข่ายการผลิตที่ครบวงจร	2002, 2011, 2012
	สินค้าอัญมณีและเครื่องประดับมีคุณภาพสูงเป็นที่ยอมรับ	2010
	เป็นผู้ส่งออกเครื่องเงินติดอันดับหนึ่งในสามของโลก	2010
	มีความยืดหยุ่นในการผลิตโดยปรับรูปแบบตามแฟชั่นได้รวดเร็วและแบบเริ่มเป็นที่ยอมรับ	2013
5	เป็นศูนย์กลางท่องเที่ยวเอเชียแปซิฟิก	2002
6	ชุมชนดั้งเดิมมีการพัฒนาเครื่องประดับที่มีลักษณะลวดลายเฉพาะตัว	2013

Summary of the 5 main researches on the Industry OPPORTUNITY from their SWOT ANALYSIS (3)

	Summary--OPPORTUNITY	Research Year
1	**หมวดการตลาด:**	
	ส่วนแบ่งตลาดยังน้อยสามารถขยายได้ โดยเฉพาะตลาดนักท่องเที่ยวในประเทศ	2002, 2011, 2013
	แนวโน้มการขายตัวของตลาดภายในประเทศ	2002(4), 2012(2)
	มีข้อตกลงทวิภาคีทำให้ขยายตลาดการค้า และเพิ่มโอกาสหาวัตถุดิบมากยิ่งขึ้น	2010, 2011
	การเติบโตของตลาดหลักและการฟื้นตัวทางเศรษฐกิจในตลาดหลัก	2011, 2012
	แนวโน้มการขยายตัวของตลาดภายในประเทศอาเซียน และตลาดใหม่	2002, 2012(3), 2013
2	**หมวดภาครัฐสนับสนุน:**	
	เป็นอุตสาหกรรมที่ได้รับการสนับสนุนจากภาครัฐอย่างสม่ำเสมอและต่อเนื่อง	2010(2), 2012, 2013
	มีหน่วยงานวิเคราะห์และตรวจสอบอัญมณีหลายแห่งเป็นที่ยอมรับระดับนานาชาติ	2010, 2013
3	**อื่น ๆ**	
	เป็นศูนย์กลางการค้าอัญมณีและเครื่องประดับที่สำคัญของโลก	2002
	มีโอกาสพัฒนาโครงสร้างอุตฯสู่ Trading base มากยิ่งขึ้นโดยผู้ประกอบการรายใหญ่	2010
	มีอุตสาหกรรมสนับสนุนค่อนข้างเข้มแข็ง	2013

Summary of the 5 main researches on the Industry THREAT from their SWOT ANALYSIS (4)

	Summary--THREAT	Research Year
1	**หมวดการตลาด:**	
	การชลอตัวของเศรษฐกิจโลก และประเทศคู่ค้าหลัก	2002, 2012
	การใช้มาตรการที่มิใช่ภาษีของประเทศคู่ค้าหลัก	2011, 2013
	เศรษฐกิจตกต่ำทำให้เปลี่ยนบริโภคจากเครื่องประดับอัญมณีมาเป็นเครื่องประดับเทียม	2010
	ภาพลักษณ์ของสินค้าไทยขาดการประชาสัมพันธ์ต่อเนื่องทั้งที่ตลาดหลักและตลาดใหม่	2011
2	**หมวดคู่แข่งและการแข่งขัน:**	
	คู่แข่งพัฒนาเทคโนโลยีการผลิต และพัฒนาพลอย	2002, 2011
	ขาดแคลนแรงงาน ค่าแรงสูง ทำให้ย้ายฐานการผลิต	2002, 2012, 2013
	การแข่งขันรุนแรง และคู่แข่งพัฒนาขึ้นรวดเร็ว	2010, 2012
	การเกิดประเทศคู่แข่งหน้าใหม่ เช่น เวียดนาม และอินโดนีเซีย	2012
	คู่แข่งมีการสนับสนุนอย่างเป็นเอกภาพจากภาครัฐด้านการผลิตและการตลาด	2010
3	**หมวดการสนับสนุนจากรัฐ:**	
	ความไม่ต่อเนื่องในการสนับสนุนอุตสาหกรรมจากภาครัฐ	2011
	หน่วยงานภาครัฐขาดการประสานงาน และบูรณาการแผนการปฏิบัติงาน	2013
4	**หมวดวัตถุดิบ:**	
	การผันผวนของราคาวัตถุดิบ	2012, 2013
	การควบคุมการส่งออกจากแหล่งวัตถุดิบมากขึ้น จำกัดการนำเข้ามาในไทย	2010

Summary of the 5 main researches on the Industry WEAKNESS from their SWOT ANALYSIS (2)

	Summary--WEAKNESS	Research Year
1	**หมวดวัตถุดิบ:**	
	พึ่งพิงการนำเข้าวัตถุดิบจากต่างประเทศเช่น เพชร พลอย และโลหะมีค่า	2002, 2010, 2011, 2012, 2013
	พึ่งพิงการนำเข้าวัสดุอุปกรณ์ประกอบ (Findings)	2002
	ขาดการสนับสนุนอุตสาหกรรมที่เกี่ยวข้อง เช่น ชิ้นส่วน ตัวเรือน แม่พิมพ์ เครื่องจักร	2011
	ขาดแคลนชิ้นส่วน (Findings) ภายในประเทศ	2012
2	**หมวดแรงงาน:**	
	ค่าแรงไทยสูงกว่าคู่แข่งจีนและเวียดนาม อาจทำให้เกิดการย้ายฐานการผลิต	2002, 2010, 2011
	แรงงานขาดความรู้วิชาการทำให้ขีดความสามารถถดถอย	2010, 2012
	ขาดแคลนแรงงานรองรับการพัฒนาอุตสาหกรรม	2011, 2012
	ปัญหาการใช้เครื่องจักรและเทคโนโลยี	2012
3	**หมวดเทคโนโลยีการผลิต:**	
	ขาดเทคโนโลยีและการวิจัยการหลอม หล่อ รีด ขึ้นรูป ชุบ โลหะมีค่า	2010
	ห้องทดสอบ trace elements มีน้อยไม่พอความต้องการ	2010
	ขาดแคลนการสนับสนุนด้านวิจัยและพัฒนา	2012
	ไม่มีการพัฒนาเทคโนโลยีเครื่องจักรเป็นของตนเอง ทำให้จำกัดการพัฒนาผลิตภัณฑ์	2013
4	**หมวดการออกแบบผลิตภัณฑ์:**	
	ขาดการพัฒนา software เพื่อการออกแบบในประเทศ ซึ่งต้องนำเข้าจากต่างประเทศ	2010
	ขาดการพัฒนารูปแบบการเจียระไนพลอยสี	2010
	ขาดแคลนนักออกแบบที่มีความคิดสร้างสรรค์และความสามารถระดับสากล	2010

	ขาดการพัฒนาการลงทุนเทคโนโลยีการออกแบบและเจียระไนต่างจากอินเดียและยุโรป	2011
	สินค้าที่ผลิตในประเทศไทยเป็นการรับจ้างผลิตตามคำสั่งซื้อเป็นหลักทำให้ไม่สร้างสรรค์	2011
	จุดเด่นสินค้าไทย และผู้บริโภคขาดการรับรู้ศักยภาพของสินค้าไทยทำให้ไม่สามารถขายสินค้าภายใต้ตราสินค้าไทย	
	ทักษะออกแบบสินค้าอัญมณีและเครื่องประดับ (ต่ำ)	2012
	การออกแบบไทยส่วนใหญ่เป็นการลอกเลียนแบบของต่างประเทศมากกว่าคิดสร้างสรรค์	2013
5	**หมวดการตลาด:**	
	เครือข่ายด้านการตลาดและระบบสินเชื่อระหว่างผู้ประกอบการไม่เข้มแข็งเหมือนอินเดีย	2002
	การตลาดของไทยเป็นแบบตั้งรับมากกว่าตลาดเชิงรุก	2010
	ขาดทักษะในการสร้างแบรนด์ให้กับสินค้า	2012
	ผู้ประกอบการไทยขาดประชาสัมพันธ์ความโดดเด่นของสินค้าที่ถูกต้องและต่อเนื่อง	2013
6	**หมวดการเงิน:**	
	ขาดการสนับสนุนทางการเงินให้แก่ผู้ประกอบการในการจัดตั้งกิจการเพราะอุตสาหกรรมนี้ต้องมีเงินในการลงทุนจำนวนมาก	2011
	ผู้ประกอบการรายเล็กขาดเงินทุนในการทำการตลาดด้วยตนเอง	2012
7	**อื่น ๆ:**	
	ภาพลักษณ์ของความไม่ซื่อสัตย์ของผู้ขายอัญมณี	2002
	หน่ายราชการที่เกี่ยวข้องขาดการประสานงานและการปฏิบัติงานเอื้อต่อการพัฒนาอุตฯ	2002

APPENDIX 6

Abbreviations

GDP	Gross Domestic Product
GIT	Gems & Jewelry Institute of Thailand (Public Organization)
GITR	Gems & Jewelry Industry Strategic Development Plan 2014-2017(2013)
NIDMP	National Industrial Development Master Plan 2012-2031
OIE	Office of Industrial Economics
OIE1	Master Plan for Gems and Jewelry Industry (2002)
OIE2	Development of Comparative Industrial Database Project to enhance the Gems and Jewelry Industry competitive advantage (2010)
OIE3	Strategic Development Project for Enhancing Creative Economy Potentiality in Fashion Industry (2011)
SME	Office of Small and Medium Enterprises Promotion
SMER	Action Plan for SME Promotion: Gems and Jewelry Industry (2012)
SMEs	Small and Medium Enterprises
UTCC	University for the Thai Chamber of Commerce

Definitions

Business Activities refers to the four business functions necessary at all to do business. These functions are on market, product, production, and operation.

Competitive Capability means an ability to perform the value-creating activities (over competitors) that express its strategy derives from its resources and capabilities. (Thompson, 2012 p. 385)

Nature is essential characteristic of a thing; quality or qualities that make something what it is; essence (Webster's New World Dictionary, 1994)