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INTRODUCTION

Finishing my Master studies in Management Science, I wanted to undertake research that would combine two areas which are close to my heart: that of ethics in trade and that which is to manage, in the most optimal way, the commercial risks for the various stakeholders in a process.

As suggested by Professor Blome, who agreed to be the supervisor of this master thesis, I decided to integrate the various learnings that I made during my studies by applying them to these two areas. In this regard, I decided to conduct research about them in the diamond trade from South Africa to Belgium.

I must admit that, prima facie, it appeared to me that entering the diamond industry was going to be a challenge. Indeed, I was convinced that this environment was relatively closed to unauthorized people and I wondered how to get there; especially as the diamond industry was totally unknown to me. So I saw this as an interesting challenge and began to take a series of exploratory contacts. My initial fears appeared to be justified: indeed, several doors were closed quite spontaneously from the moment I solicited an interview with actors directly involved in the diamond trade.

Alongside this exploratory work with field workers, I was leading bibliographic research centered both on the diamond trade from South Africa to Belgium and the analysis of the procedural steps of the supply chain risk management. Over the course of this research, the sampling of the interviews that imperatively needed to be conducted was getting clearer; and an interview guide has gradually been developed.

Implementing a certain stubbornness to find and maintain some contact with the field actors, I was – in fine - positively welcomed by several of them. As one will read in the development of this master thesis, those actors were working in particularly relevant companies regarding the diamond supply chain.

This paperwork will be composed of three parts and five chapters. The first part, “the background section”, aims at presenting the diamond trade, from South Africa, under the axes of ethics, economics and geopolitics.

The second part, “the literature review”, reviews the various practices and empirical findings found in the literature over the supply chain risk management and the integration of ethics and corporate social responsibility in the supply chain.

The third part, “the practical study section” begins with a chapter that presents the methodological framework inspired from Yin’s case study research methodology; it explains how I established the sample of my interviews, how I collected the data and how it was analyzed. The following chapter will be a single case analysis where the findings of each case will be highlighted separately. The final chapter will be a cross-case analysis that will aim at identifying new propositions to contribute to, complete or modify the literature findings.

This work will end by drawing conclusions, firstly, to present the answer to my research question; secondly, to present the limitations of the study; and finally, to open the door to further research developments that could be led in the future over this topic.

PART A : BACKGROUND SECTION

In this section, I will discuss the concept of ethical and low-risk supply chain when buying diamonds in South-Africa. In a first chapter, I will describe the economical and geopolitical situation of this country. In a second chapter I will discuss the supply chain risk management practices and processes.

CHAPTER 1

DIAMONDS IN SOUTH AFRICA: ECONOMICS, GEO-POLITICS AND ETHICS

I made the choice of working on South Africa because of the fact that it has just entered the main group of emerging countries: the BRICS (formerly BRIC) representing Brazil, Russia, India, China and most recently South-Africa. In fact, those countries are becoming big new actors on a worldwide scale. For instance, only those five countries represent 18 percent of the world's GDP. Those countries have an international role to play because emerging countries are expected to represent 60 percent of the worldwide growth by 2015. The BRICS have then common interests to assert. As stated by the Centre National de Documentation Pédagogique, CNDP (2011) in one of their reports on emerging countries: "*Since 2009, annual summits allow the BRICS (Brazil, Russia, India, China, South-Africa) to attest common interests, and to enhance their place on world economical governance. […] But there are difficulties; competition and political uncertainty are the main reason why they are not yet 'giants' on the world geopolitical scale*". Nevertheless, South Africa has the potential to become a future leading economical pole on a worldwide level. The following section will be dedicated to describe in a broad way the current situation in South Africa.

1.1. Economic, social and political context

Since the end of Appartheid in 1990, South Africa wants to assert its position as a leading emerging country in the new economic order. As Darbon (2008, 137)

emphasizes, *"South Africa is distinguished by a quarter of the GDP of Africa, a third of sub-Saharan Africa and three quarters of the Southern Africa Development Community."*

As shown in the IMF Table below, the overall GDP in 2015 would reach 352.53 billion USD.

Growth indicators	2011	2012	2013	2014	2015 (e)*
GDP *(Billion USD)*	404,34	382,34	350,80	341,22	352,53
GDP *(annual growth as %, assuming USD price is constant)*	3,6	2,5	1,9	1,4	2,3
GDP per capita *(USD)*	7.839e	7.314	6	6.354	6.477
Government balance (*as % of GDP)*	-3,8	-4,2	-4,3	-4,6	-4,8
Government debt *(as % du GDP)*	38,8	42,1	45,2	47,9	50,8
Inflation rate *(%)*	5,0	5,7	5,8	6,3	5,8
Unemployment rate *(% of the workforce)*	24,8	24,9	24,7	25,2	25,0
Current account *(billion USD)*	-9,39	-20,04	-20,43	-19,57	-19,88
Current account *(as % of GDP)*	-2,3	-5,2	-5,8	-5,7	-5,6

*Source : IMF- World Economic Outlook Database - 2015. * (e) stands for expectation*

Furthermore, the Belgian Agency for International Trade (2013, 14) argues that *"according to this criterion, South Africa would be the most developed country on the continent."*

However, if South Africa appears unquestionably today as an emerging country, the fact remains that it is further distinguished by a number of relatively persistent socio-economic difficulties. As stated by the OECD in a report of March 2013: *"Despite great success in many economic and social areas over the past nineteen years, South Africa faces continuing economic difficulties reflecting, at least in part, the pernicious legacy of apartheid."* I will present below two basic elements that characterize the emerging position of this country: on one hand, the forces on which South Africa can rely, and on the other hand, the difficulties that the country is still - after all - facing.

1.1.1. Forces on which South Africa can rely

A. The consequences of the end of apartheid

The determinant factor in the history of South Africa, the abolition of apartheid, had two positive effects on economic issues.

a. A progressive upgrading policy.

With the end of apartheid in 1990, South Africa had to find solutions with respect to certain issues that emerged. It was necessary to stimulate the integration of a population - mostly black - who had been marginalized so far. It was also necessary to develop the domestic market, largely untapped during the period of apartheid. In the early 1990s, tensions were still numerous in this country. Indeed, as pointed out Darbon (2008, 138) *"the State had clearly opted for a liberal policy supportive to investment and the strengthening of production equipment at the expense of social redistribution policy."*

Since 1994, however, as part of GEAR, Growth, Employment and Redistribution, there is a genuine modernization of the economic apparatus which materializes, according to Darbon (2008, 139) by *"continued growth: 3.2% per year from 1994 2005, and even 5% since 2006; against 0.8% from 1983 to 1993!"* This upgrading policy towards the disastrous situation of apartheid is essentially based on three mechanisms. Firstly, a systematic support for modern and productive sectors; - such as the chemical and the modern transportation sectors, South Africa Info (2015) - this will cause a positive domino effect on the less successful activities modernized by them. Then an incentive

program in social aid and investments in health and education, for example. This allows a gradual improvement - but still too marginal, as I will show in the next point - for the poorest populations. Finally, there is an 'Affirmative Action Policy' that allows access to jobs, even to senior positions, to poor and marginalized groups. However, as Darbon (2008, 140) points out, *"these upgrading effects were limited by tight fiscal policy to the detriment of public investment, and by a modernization of the very expensive job productive program."*

b. An international openness

The end of apartheid in South Africa opened the country to international trade, due in particular to the lifting of international economic sanctions against it. In fact, it has become an economic and political partner of the great powers: for example, it has a special trade agreement with the EU since 2000, the Trade Development and Cooperation Agreement. As noted in the report of the French Ministry of Foreign Affairs, (2015, 4) *"the EU remains by far the largest trading partner of South Africa."*

Furthermore, South Africa has also developed many initiatives vis-à-vis its African partners. Thus, for example, it houses the Parliament of the African Union. In addition, this country provides more and more priority to its relations with the BRICS. Indeed, as emphasized by the French Ministry of Foreign Affairs (2015, 4) *"If the EU is still the largest trading partner of South Africa and an essential area for South African exports, the country, due to the economic crisis, believes that the EU is responsible for having caused its fall during the global economic crisis."* South Africa therefore seeks to increase its trade with the emerging powers, foremost among which: the BRICS. Thus, South Africa participated for the first time in the BRICS forum in 2011 and hosted the summit in 2013. Desiring to develop strong partnerships with developing countries, it is investing heavily in the BRICS. The Belgian Agency for International Trade (2013, 24) wrote about it: *"since the arrival of South Africa in the BRIC (now well BRICS), strong growth of trade relations with other BRICS countries was recorded: they have increased from 11.6% before integration, to 27% since."*

B. The natural resources

The Belgian Agency for International Trade (2013, 4) says that one of the major assets of South Africa is its subsoil full of varied resources: in particular, gold, platinum, coal and diamonds. It stresses that *"diamonds, especially, give the country a central place on the international stage."* Indeed, more than half of the world production of diamonds is mined in Africa; the rest comes from Russia, Canada or Australia. Moreover, it is useful to specify that 70% of diamonds harvested in South Africa are valuable quality for jewelry; others are used for industrial application. However, the precious opportunity of this diamond resource must be tempered in two important respects:

a. On the one hand, this resource is not inexhaustible. Indeed, as pointed out by the Belgian Agency for International Trade (2013, 35) *"the amount of harvested diamond undergoes a steady decline, 3.4% per year, which is explained by the depletion of mining sites."*

b. On the other hand, the mining sector has experienced in recent years, serious strike movements whose claims are essentially about the salaries. Some wage increases were granted but they now weigh on the country's competitiveness compared to its competitors.

1.1.2. Internal and external challenges that South Africa has to face

As stated by Darbon (2008, 143) *"a set of internal and external challenges, largely linked to the legacy of apartheid, will continue to weigh heavily on the economic development of South Africa."*

In terms of internal challenges, there is a very high unemployment rate; a particularly disturbing social and criminal violence; an educational system which results in poor and very uneven results. Finally, the mortality linked to the AIDS virus is absolutely devastating.

Unemployment remains at an extremely high level. As highlighted in the report of the Belgian Agency for International Trade (2013, 22) *"Employment is one of the major*

challenges for the South African government. Unemployment is raging there. The official rate was 25.2% in March 2013, following a further increase of 0.35% compared to December 2012." The OECD (2013, 20) says *"that just over 40% of the workforce has a job, against an average of 65% in the countries that are member of the OECD."*

Of course, this situation reinforces the frustration of a large part of the population which lives in a particularly significant social disparity situation. In Darbon's words (2008, 143) *"Over 50% of the population lives in extreme poverty compared to an increasingly rich minority."* A recent report of the French Ministry of Foreign Affairs (2015,3) also argues on this subject, that *"this country is suffering from the coexistence of high unemployment, up to a third of the workforce, thus one out of two young workers, and a very high inequality level: Gini index of 0.7, higher than it was at the end of apartheid in 1990."*

a. Social and criminal violence also reached a high level: 16,000 murders a year, as emphasizes the French diplomatic source already mentioned above. This problem severely affects South Africa and as Darbon (2008, 143) shows *"anti-foreigners riots of the early 2008 were only one form of violence produced by the growing social frustration, often fueled by some traditional leaders of the Congress of traditional Leaders of South Africa (Contrelesa) and populist politicians."*

b. AIDS is also a challenge for the country. Nearly 31% of the adult population, especially the new generation, is affected by this virus. Of course, this creates - in addition to the obvious social drama - particularly important financial and economic costs. The 2015 report of the French Foreign Ministry (2015, 3) states that *"despite an extensive program of antiretroviral therapy, the country still has a very high HIV prevalence rate of 17.9% among 15-49 years)."*

c. Educational outcomes are, on average, poor and very uneven. In particular, the school system does not produce the skills expected by the labor market. It is then a cause of high unemployment, especially among young people. As the OECD (2013, 2) emphasizes *"the shortage of teaching materials, teachers, support staff and establishment operators trained in the largest part of the school system is one of the main causes of poor performance."*

On one hand, in terms of external challenges, the emerging strategy of South Africa also faces large obstacles. Thus, even if the end of the Apartheid allowed an increase in consumption, it is not sufficiently ensured by domestic production. This must be offset by increased imports from other emerging countries, as stated by Darbon (2008, 143) : *"these emerging countries exporting to South Africa are essentially China and India."* Therefore, as argues the OECD (2013, 2) *"production rises too slowly compared to most other emerging economies with intermediate income."*

On the other hand, still in the field of external challenges, the presence and ambition, displayed in Africa by large emerging countries such as China and India - as noted above - are also factors that are likely to thwart the South African expansion on the African continent. And thus limit the country's ability to have enough commercial partnerships with its neighbors.

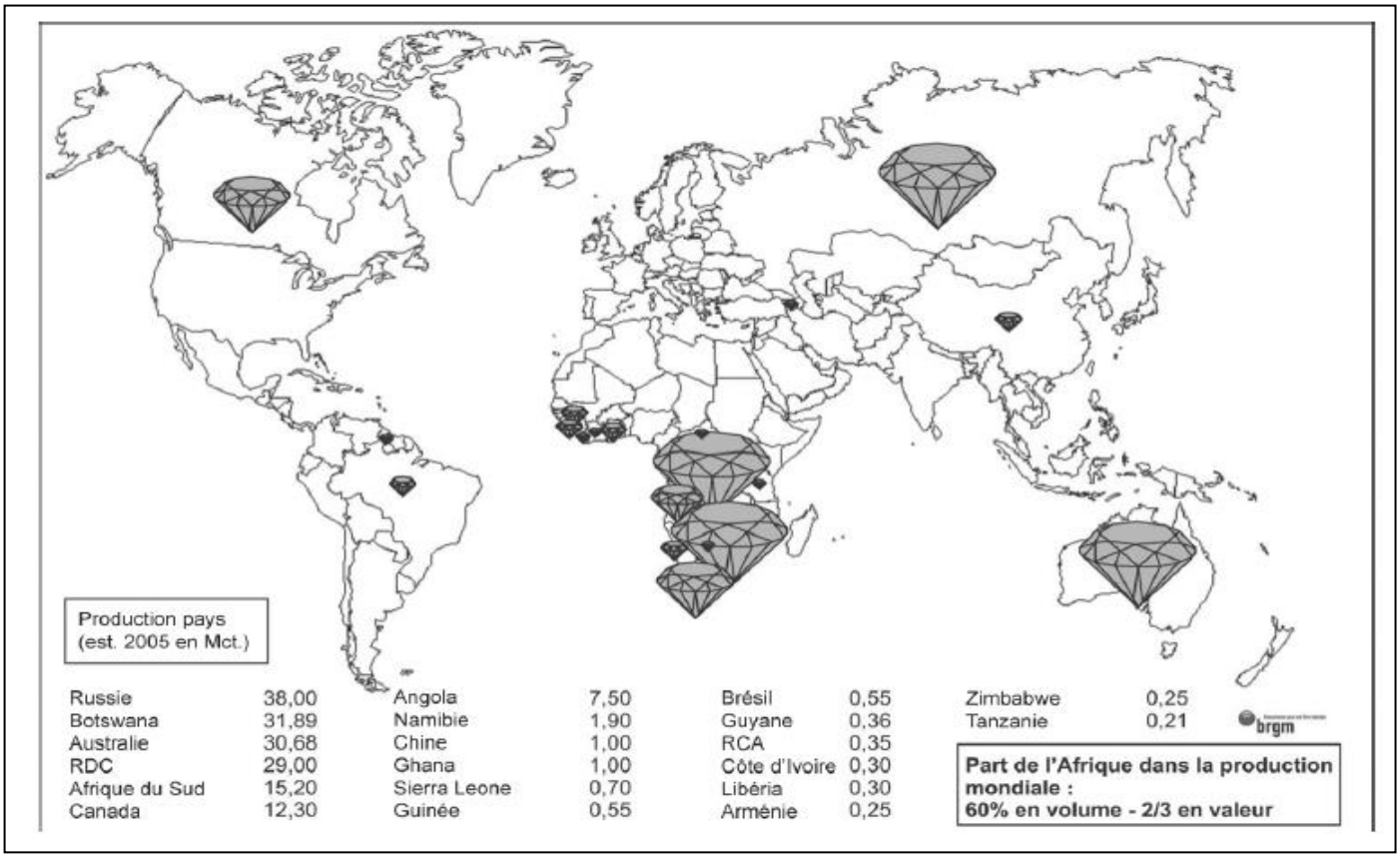
1.2. Diamonds in South Africa

I decided to write my master thesis over this sector because the main imported goods from South Africa to Belgium are diamonds and precious metals. In fact, in 2012, precious stones and metals accounted for 24 percent of the global Belgian imports from South Africa. In addition, a distinction has to be made between the gem -pure/high quality diamonds used for jewelry - and industrial - very impure and opaque diamonds, used for the manufacturing of industrial tools such as oil drilling instruments – diamonds. I will mainly focus this paperwork on the gem diamonds because it represents the large majority of the precious stones imported in Belgium to produce jewelry. In 2012, the total amount of precious stones and metals imported from South Africa to Belgium exceeded 610 Million USD.

In order to clarify the reader's understanding, I refer to the diamond market in terms of volume, or in terms of value. The volume is expressed in millions of carats (Mct) which represent the weight of the product (1 carat = 0.2 grams of diamond stone). But the value will be expressed in American Dollar currency (USD).

To establish the context, studies were placing South Africa as the fifth (2005) largest producer of diamonds in term of volume and the fourth largest in term of value across the world: it is preceded by Russia, Botswana, Australia and the Democratic Republic of Congo, ORRU J.-F. (2007). Nowadays, South Africa remains in the top 10 of diamond producers as they are the seventh largest worldwide volume manufacturers with approximately 3 Mct per year.

Figure I: Map representing the world diamond production in 2005:



From : Orru, Pelon, Gentilhomme (2007, 176)

1.3. Ethics: the "Blood diamonds" problem

The problematic of "blood diamonds" refer to precious stones that were used to finance armed conflicts, mainly in Africa. According to Jean-François Orru (2007) the spread of this issue is a three steps process that takes its origin in the "cold war".

Firstly, during the period from 1960 to 1990, as the main colonialist powers were giving their independence to African countries, there was a big stake for the Eastern world (communist) and the Western world (liberal). Both big poles were ready to finance rebel armies when the power in place was held by the other party. As leading a direct conflict was not possible for the Eastern and the Western poles, both parties externalized the battlefield in the South, each of them trying to attract in their "ideological nets" the rising emerging countries, which were by then called the Third World. The author highlights (2007, 176) that : "*the situation was pretty comfortable for the rebels in the African countries as they were able to ask for financial and political support from the side opposite to the one of their government*." And during this time, the monopole of precious stones in Africa was held by the De Beers conglomerate, leading the market to a situation where the price was fixed by the corporation, at the highest price possible to earn a maximal profit. Then the problem was that as the prices were fixed, it was very easy to set up a marginal industry for precious stones, with a price that wouldn't fluctuate much. This state of affairs has led to an increase in illegal sales networks to finance armed conflicts in countries of Sub-Saharan Africa.

Secondly, with the fall of the Berlin Wall in 1989 and the end of the cold war, the developed countries had so far no more interest in helping politically and financially the Southern countries. So that the conflicts that already existed between the different ethnic groups were not supported anymore by the main world powers. During the cold war, the local existing conflicts were just seen as collateral damage to serve the cause of the United States and the USSR. Naturally, the informal sector of mineral goods boomed between 1990 and 2000 because it was the simplest way for the armed groups to have access to substantial financial resources. Vandeburie (2005, 503) describes the situation in those terms: "*This was the first opportunistic logic: soldiers contributing to the development of smuggling with neighboring countries, of weapon traffic and foreign influences*". During the 90's and with the rise of "blood diamonds", precious stones and metals had become the objective of the conflict, and was not anymore a way to serve the

cause. Diamonds became the source of the conflict itself. This decade had marked the weakening of the authority of the African states, which inevitably led to a reduction in the power of the army and the emergence of mercenary groups that were paid through mining exploitation. In the meantime, the monopoly held by De Beers had to face competition from Australia and Canada, in such way that the cartel of diamond was crucially destabilized in 2000.

Finally, the efforts of NGOs such as Global Witness, Amnesty International or PAC since the late 1990 become fruitful: the public is by then focused on the dark side of diamonds: the "blood diamonds". These organisms denounced the sale of diamonds used to finance deadly conflict through sensational, founded and well-argued media campaigns. With the increase of telecommunication means, those campaigns have a very large scale impact. The public was now aware of the cause. During the early 2000, private actors such as multinational enterprises and non-governmental organization from the 'civil society' appeared to be major actors on the stage of international relationships. The promotion campaigns launched by those institutions are labelled "ethics" and are exerting political and media pressure to make the traffic of diamonds linked to mineral conflict stop, and therefore to sanitize the entire supply chain.

Jean-François Orru (2007, 179) emphasizes : *"The dominant place of precious stones in the world geopolitics tend to intensify in 2001(…)Many publications attempted to demonstrate the link between the exploitation of West African diamonds and the financing of Al Qaeda, so as the 'book blood of stones' by Douglas Farah."* But he completes this statement saying this: *"However, this link remain hypothetical, the Al Qaeda funding sources are complex and diverse. It seems established that gold, some gems of Central Asia and especially the poppy derivatives have counted more than diamonds in the financial supply of Al Qaeda".* As a matter of fact, in the period following 9/11, the United States of America, started the war against terrorism, and diamond producing countries would not want to be in bad terms with the super power of the Bush's administration. So those countries agreed to a lot of resolutions in order to have a 'good governance' policy regarding the trade of diamonds. Those measures were taken to limit the financial supply of terrorist organizations.

In parallel to this situation, the empire De Beers was threatened, even in Africa. So the conglomerate decided to follow the path traced by the NGOs as stated by Orru (2007,

186) : "*It will actively participate in the creation and animation of the "Kimberley Process". It sees, in fact, a way to regain control by placing itself exclusively on the side of "clean" diamonds (Botswana, South Africa and Namibia) and in the meantime seeking to neutralize its new competitors, if necessary by interposed embargo.*"

The first measure taken by the United Nation was the embargo. Knowing the direct link between the precious stones and the conflicts, the countries had no legal way to sell their production to potential buyers. The counterpart of this measure is that it has increased the smuggle market.

The second measure taken by the international community was to create the "Kimberley Process". Orru (2007, 186) gives a definition of this international agreement : "*It is an international system of rough diamond certification formally established in 2003 as a result of a long process of reflection, consultation and negotiation between civil society, the world of industry, international institutions and governments in order to eradicate blood diamonds. The principle is simple: any country member must issue certificates of origin to ensure that all diamonds exported from its territory is not from a conflict zone.*"

PART B : LITERATURE REVIEW

CHAPTER 2

SUPPLY CHAIN RISK MANAGEMENT

Handfield and Nichols (1999, 183) define the supply chain as follow: "*The supply chain encompasses all activities associated with the flow and transformation of the goods from the material raw stage (extraction) through to the end user, as well as the associated information flows. Material and information both flow up and down the supply chain";* before emphasizing about the supply chain management: *"(SCM) is the integration of these activities through improved supply chain relationships, to achieve a sustainable advantage.*" It appears that according to this definition, the supply chain management both includes the upstream suppliers, and the downstream distribution channel. Each actor of an entire supply chain must be able to manage and to combine both the relationships with his suppliers and obviously, with his customers. In that regard, these authors are joined by Croxton and Rogers (2001, 13-14). In fact, the latter defines the supply chain management as an ongoing process involving the various business units – purchasing, production, logistics, R&D, finance, marketing – of a company: "*Increasingly, supply chain management is being recognized as the management of key business processes across the network of organizations that comprise the supply chain."* Furthermore, the authors state that not only the 'cross-business units' information flows are important, they argue "*that streamlining cross-company processes is the next great frontier for reducing costs, enhancing quality, and speeding operations*".

2.1. Risk management in the supply chain

Manuj and Mentzer (2008, 192) emphasize on the competitive advantages given to a firm through its development of a global supply chain. Both authors acknowledge that it could lead to "*access to cheap labor and raw materials, better financing opportunities, larger product markets, arbitrage opportunities, and additional inducements offered by host governments to attract foreign capital."* Furthermore, Damien Forterre (2013, 1)

explains that sourcing in emerging markets becomes essential for a lot of companies these days. He states that: *"Companies do not hesitate to import/export goods and services produced out of their boundaries in order to create value and to develop comparative or competitive advantages. The countries must so buy in other places what they are not producing."* Sourcing in emerging markets has thus a twofold purpose:

- Firstly, sourcing in emerging markets may be done in order to achieve operational objectives. In fact, Espino-Rodriguez (2004, 287) writes over the advantages provided by the outsourcing of services: *"The outsourcing of services enables a company's resources and capabilities to be improved by achieving better quality services and a better performance (…) on operations strategy, and particularly on the objectives of cost reduction related operations, improved quality, flexibility and better service."* In the same sense, Maskell, Pedersen and Petersen (2007, 239) add that the outsourcing of goods allows firms to reach the same operational objective as they emphasize: *"advantages that can be achieved through outsourcing in low-cost countries: the insourcer/vendor may not only offer cost advantages, but also quality improvement and innovation."*

- Secondly, there is a strategic rationality linked to the fact of sourcing in emerging countries; cost reduction, access to raw material, and quality improvement are not the only triggers of offshore sourcing. Sourcing in emerging markets also results from corporate strategy decisions. Zhu et al. (2001, 373) emphasize *"The role of outsourcing being not only a cost-saving method but also part of the overall management strategy to focus on core competitiveness"*. As a matter of fact, global sourcing is also due to the focal firms' willingness to gain competitive advantages such as facing the rapidly changing business environment, reducing the business risks, searching for an increased flexibility and having a greater emphasis on the core competencies (Zhu et al., 2001, 373); but also to access new markets, and to diversify the corporate's portfolio.

2.1.1. Risk origin and definition

Even though the development of a global sourcing strategy represents a set of advantages and opportunities for the firms, it is however not all rose. The contradictory statement of Barry (2004, 695) saying that "*globalization often results in the lowest overall cost of goods sold! However, what economic cost factors should now be assigned to the higher level of risk associated with a global supply chain*" makes it very clear. In addition, leading an empirical study, Bryce and Useem (1998, 635) underline that "*company managers frequently complain about the downsides, some companies have retrieved what they had sourced out, failures can be seen here and there, and the long-term potential consequences of outsourcing too much are yet to be seen."* Manuj and Mentzer also depict the drawbacks of global sourcing by highlighting that it causes uncertainty and consequent risks (2008, 192). Hence, Damien Forterre sums up the first authors' visions by recalling that in recent years, it becomes necessary for companies to include the notion of risk within their international procurement strategy (2013, 1).

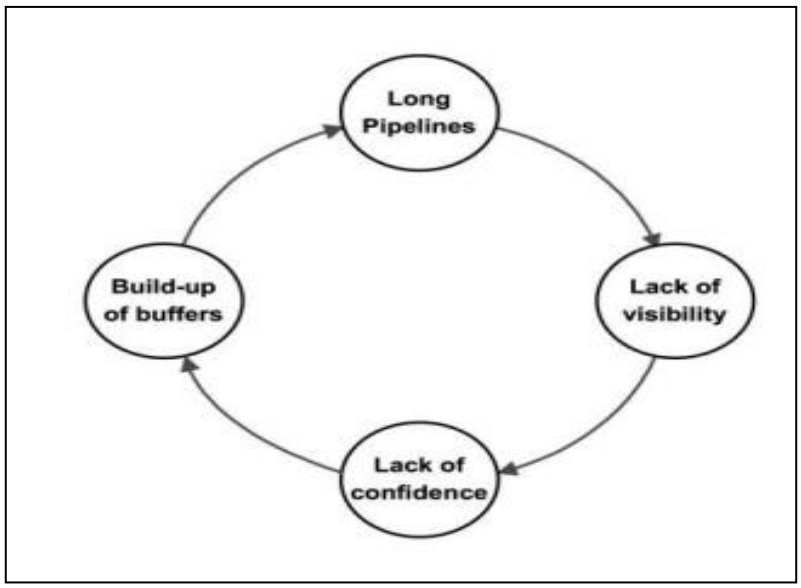
The point is that the changes in a company's business strategy – for example the move to outsourcing – have overall increased the vulnerability of the supply chain (Christopher and Lee, 2004, p. 388). Due to this increase of vulnerability, Norrman and Jansson (2004, 434) state that "*industries moving towards longer supply chains (e.g. due to outsourcing) and facing increasingly uncertain demand as well as supply, the issue of risk handling and risk sharing along the supply chain is an important topic".* Furthermore, Svensson adds an important nuance: the increase of the vulnerability of supply chains appears even more substantial when the focal firms' business has become dependent on the suppliers' organization (2000, 731). In other words, when outsourcing is not done through a vertical integration, but through the use of local suppliers, the supply chain will face a higher vulnerability.

In order to get a clear definition of the supply chain risk, Damien Forterre (2013, 1) state that "*According to the International Office for Standardization (ISO), the risk is the effect of uncertainty on the objectives. (…) we will refer to it as 'the evolution of various environments impacting the profitability of a project*'." In the same sense, Tummala and Schoenherr (2011, 474) go further on risk definition as they depict it so: *"Regardless of the area of interest, risk is associated with an undesirable loss, i.e. an unwanted negative*

consequence, and uncertainty." Even though the definition of Tummala and Schoenherr appear more complete, the vision of Damien Forterre adds a non-negligible nuance: the risk is evolving over time – as the environment is - and must so be managed continuously.

In line with continuously managed risk across the supply chain, Christopher and Lee (2004, 391) described the risk spiral. The point of the authors is that risk (unwanted losses, negative consequences and uncertainty) in global supply chains is are also due to a lack of communication and confidence between the various stakeholders. The authors state that long end-to-end supply chain will decrease visibility for the buyer. This situation leads to a lack of confidence between the supplier and the buyer. In fact, the authors suggest that building buffers and control zones across the supply chain allows reducing the "lack of confidence risk". However, the excessive use of buffers leads to an increase of financial risk. Hence again, Christopher and Lee recall that the supply chain management should encompass suppliers' involvement and long-term continuous vision.

Figure II: The risk spiral:



From Christopher and Lee, (2004, 391)

2.1.2. Supply Chain Risk Management strategy

Tummala and Schoenherr then emphasize on the crucial need to develop risk mitigation strategies. The authors highlight the importance of creating tools in order to manage the

risk within the supply chain: "*Firms need to understand supply chain interdependencies, identify potential risk factors, their likelihood, consequences and severities. Risk management action plans can then be developed to preferably avoid the identified risks, or if not possible, at least mitigate, contain and control them*" (2011, 474). The importance of managing risk across global supply chain being discussed, Norrman and Jansson define the supply chain risk management (SCRM) as such: *"[it] is to collaborate with partners in a supply chain, apply risk management process tools to deal with risks and uncertainties caused by, or impacting on, logistics related activities or resources"* (2004, 435). Norrman and Jansson suggest developing SCRM in a three-step framework: *"Identification/ analysis, Assessment, Management"* (2004, 435). This model is completed by Tummala and Schoenherr that also developed a three-phased framework called the "*Supply Chain Risk Management Process (SCRMP)*" that goes further on managing risk as it adds the notion of control and monitoring to it (2011, 475):

- *"Phase 1: Risk identification, measurement and assessment*
- *Phase 2: Risk evaluation, ranking, acceptance, mitigation and planning*
- *Phase 3: Risk control and monitoring"*

Phase 1: Identification, measurement and assessment

The first phase of SCRMP is commonly acknowledged to be essential in supply chain risk management. In fact, Norrman and Jansson assert that: *"the first activities in developing business continuity plans are identifying the risks and assessing their probability and impact"* (2004, 438). Ritchie and Brindley also indicate that "*the process of identifying, assessing, prioritising and evaluating the sources and drivers will yield an assessment of the ex-ante risk and performance consequences for the organization*" (2007, 304).

A. Risk identification

A lot of risk triggers have been highlighted as being barriers to supply chain performance; from the globalization of supply chain and increased dependency on the offshore suppliers to the reduced buffer and inventories (Norrman and Jansson, 2004, 434). There is also the complexity of the global supply chain, leading to

security risks and the risks that are present both in supply and demand for the raw material and the final products (Mihalis and Michalis, 2010, 23; Manuj and Mentzer, 2008, 197); or whether the lack of "buyer-supplier" confidence leading to delays, bad transportation conditions, bad suppliers' reliability, … (Christopher and Lee, 2004, 390). Tummala and Schoenherr summarized ten risk categories and their triggers that can be found in the following table. In fact, the authors emphasize "*this list is illustrative of the multitude of risks that may be present. Affected areas need to be clearly identified and consequences need to be understood so that risk mitigation strategies can be implemented*" (2011, 474).

Figure III:Supply chain risk categories and their triggers:

Risk category	Risk triggers
Demand risks	Order fulfillment errors
	Inaccurate forecasts due to longer lead times, product variety, swing demands, seasonality, short life cycles, and small customer base
	Information distortion due to sales promotions and incentives, lack of SC visibility, and exaggeration of demand during product shortage
Delay risks	Excessive handling due to border crossings or change in transportation mode
	Port capacity and congestion
	Custom clearances at ports
	Transportation breakdowns
Disruption risks	Natural disasters
	Terrorism and wars
	Labor disputes
	Single source of supply
	Capacity and responsiveness of alternate suppliers
Inventory risks	Costs of holding inventories
	Demand and supply uncertainty
	Rate of product obsolescence
	Supplier fulfillment
Manufacturing (process) breakdown risks	Poor quality (ANSI or other compliance standards)
	Lower process yields
	Higher product cost
	Design changes
Physical plant (capacity) risks	Lack of capacity flexibility
	Cost of capacity
Supply (procurement) risks	Quality of service, including responsiveness and delivery performance
	Supplier fulfillment errors
	Selection of wrong partners
	High capacity utilization supply source
	Inflexibility of supply source
	Poor quality or process yield at supply source
	Supplier bankruptcy
	Rate of exchange
	Percentage of a key component or raw material procured from a single source
System risks	Information infrastructure breakdowns
	Lack of effective system integration or extensive system networking
	Lack of compatibility in IT platforms among SC partners
Sovereign risks	Regional instability
	Communication difficulties
	Government regulations
	Loss of control
	Intellectual property breaches
Transportation risks	Paperwork and scheduling
	Port strikes
	Delay at ports due to port capacity
	Late deliveries
	Higher costs of transportation
	Depends on transportation mode chosen

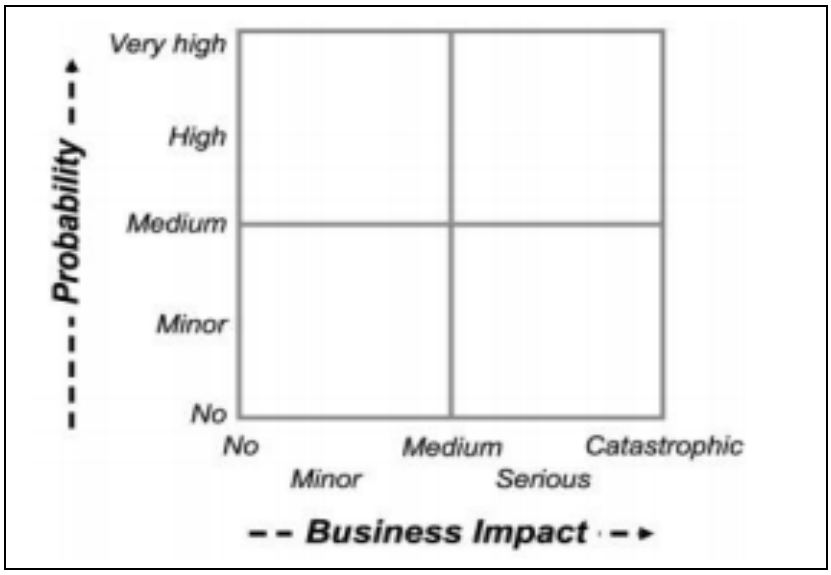
From: Tummala and Schoenherr (2011, 474)

As a matter of fact, the various supply chain risks that a company is facing must be clearly identified and understood. Furthermore, the triggers and consequences must also be determined by a firm when willing to manage supply chain risks.

B. Risk measurement

As noted here above, the second step of the first phase consists in determining the consequences that are involved by all the identified risks. For example, typically, when a company is not able to respond to the market demand, it generates revenues shortfalls. In that regard, the risk must then be classified according to their severity when occurring and their predictability (Norrman and Jansson, 2004). The following matrix established by Norrman and Jansson allows measuring the risks identified:

Figure IV: Risk measurement matrix:



From: Norrman and Jansson (2004, 436)

Cockford (1986) also proposes a popular risk measurement classification described by Tummala and Schoenherr: *"[it] characterizes [the risk] consequences into trivial, small, medium and large. As such, trivial consequences occur with a very high frequency, have a very low severity, and a very high predictability. Small consequences have a high frequency, a low severity, and a reasonable predictability, with however their occurrence being infrequent. Medium consequences have a low frequency, a medium severity, and also a reasonable predictability, with their occurrence being frequent. Finally, large consequences can be characterized by a very low frequency, a high severity, and a minimal predictability"* (2011, 476). The following table synthetizes the previous definition of risk measurement by Tummala and Schoenherr.

Figure V: Risk measurement table:

Risk Name	Frequency			Severity			Predictablity			Category	Risk Consequence index[1]
	High	Medium	Low	High	Medium	Low	Low	Medium	High		
A	X					X			X	Trivial	1
B	X					X		x		Small	2
C			x		x			x		Medium	3
D			x	X			x			Large	4

Adapted from: Tummala and Schoenherr (2001, 476)

C. Risk assessment

Risk assessment is important for the risk management decision makers because it helps to determine the company's responsiveness to the risk and allows the development of risk management solutions (Ritchie and Brindley, 2007, 317). ZSIDJSIN et al. also underline that "*risk assessment techniques facilitate the obtaining of information by purchasing organizations to verify supplier behaviors, promoting goal congruence between buying and selling firms, and reducing outcome uncertainty associated with inbound supply*" (2004, 397). As a matter of fact, the third part of the first phase consists in assessing the likelihood of occurrence of each risk. In every category established in the previous part, a clear distinction must be made between the various risks over the probable frequency of occurrence. (E.g. does the risk happen: every week, every month, every year, once in a decade?). Manuj and Mentzer strongly insist on the importance of this step: "*while probability and impact of losses are the most commonly discussed dimensions of risk, two more risk dimensions (speed and frequency) are important in global supply chains*" (2008, 196). Hence, the following table synthetizes the risk categorization based on frequency of occurrence.

[1] The risk consequence index refers to a grade given to each category. It is important to establish it, because companies will need it when evaluating the risks during Phase 2.

Figure VI: Risk assessment table:

Risk Name	Qualitative description, average happening:	Risk probability	Risk Probability index
A	Once a week	Often	4
B	Once a month	Infrequent	3
C	Once a year	Rare	2
D	Once in a decade	Extremely rare	1

Adapted from: Tummala and Schoenherr (2011, 476)

Most companies develop protective plans in order to mitigate the risks measured "trivial", and assessed "often". However, many companies ignore the importance of the risk measured "large" and assessed "extremely rare" (Tummala Schoenherr, 2011, 476; Manuj and Mentzer, 2008, 193). In the same sense, Manuj and Mentzer affirm that "*by understanding the variety and interconnectedness of supply chain risks, managers can tailor balanced, effective risk-reduction strategies for their companies*" (2008, 193).

Phase 2: Risk Evaluation, Risk mitigation and planning

After having finished the first phase, where every risk consequence and probability has been assessed, the following step consists in evaluating the risk, and developing strategies in order to mitigate it.

A. Risk evaluation

This step is composed of two sub-steps being respectively risk ranking, and risk acceptance.

- The risk ranking is based on the assessment done during the first phase. In fact, this step consists in establishing a ranking based on the numerical values

assessed both for the risk consequence index and the risk probability index. This is done in order to determine what the authors call: "*The risk factor = Risk Consequence Index X Risk Probability Index*". When combining the tables here above, the various risk A, B, C and D are classified this way.

Figure VII: Risk ranking table:

Risk Name	Risk Consequence index		Risk Probability index		Risk Factor
A	1	Trivial	4	Often	4
B	2	Small	3	Infrequent	6
C	3	Medium	2	Rare	6
D	4	Large	1	Extremely rare	4

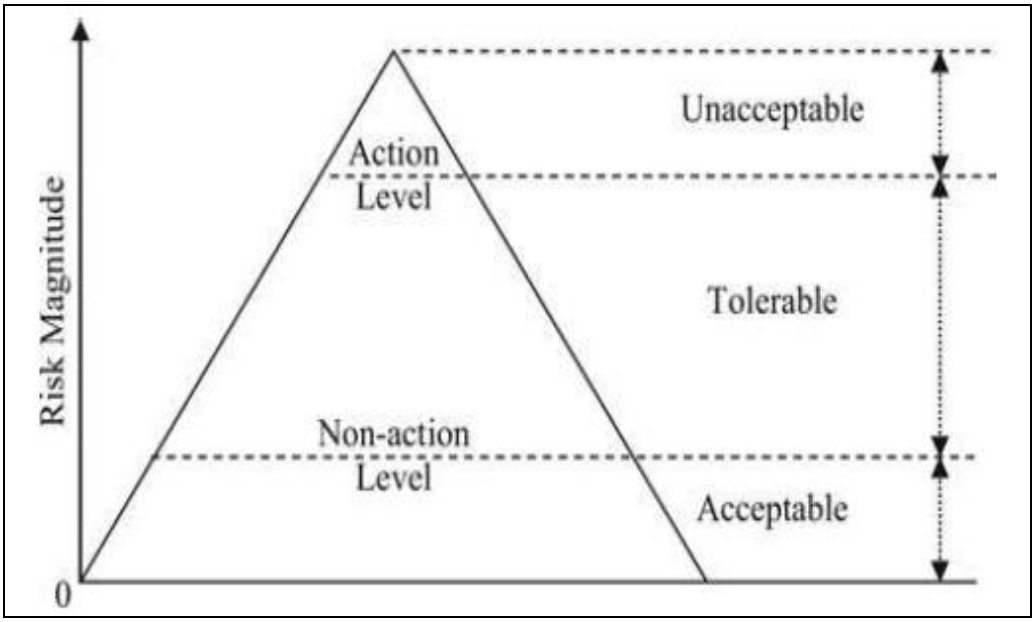
Adapted from: Tummala and Schoenherr (2011, 477); based on figures XX and XX

In that regard, a large risk with a high probability of occurrence would be graded 16 (4x4), and a trivial risk that happen extremely rarely would be graded 1 (1x1). The most important the risk factor is, the most critical the risk is likely to be.

- Risk acceptance is based on the risk factor assessing method. In fact, Tummala and Schoenherr (2011, 478) state that "*these risk exposure values can be grouped into classes representing similar ranges of exposure. For example, risks with values between 16 and 11 could be grouped in the most critical class."* A middle class of risk exposure would be composed of the risks graded between 10 and 6, and low-risky category would include the risks graded between 5 and 1. It is now important for a firm to understand its acceptance level for the risk. As a matter of fact, some risks represents such danger for the company that they absolutely must be taken care of; while others only represent small threats to the firm's business so that their occurrence is likely to be handled without representing a big concern for the core business.

The authors established a three-level framework representing a company's acceptance to the risk. Some are called unacceptable (16-11), some are called tolerable (10-6), and some are called acceptable (5-1). This model was diagrammed by the authors as such:

Figure VIII: Risk acceptance diagram:



From: Tummala and Schoenherr (2011, 479)

This method helps to have an overview over the various risks that the supply chain is facing. Furthermore, it allows the companies' management to prioritize and take actions when necessary.

B. Risk mitigation and planning

Tummala and Schoenherr (2011, 479) emphasize that the last sub-step of the second phase consists in "*the development of risk response action plans to contain and control the risks. (…)Once risks have been identified, their consequence severity has been assessed, and their probability determined, risk mitigation action plans can be developed.*" The vision of the previous authors is shared by Norrman an Jansson as they underline the importance of developing "*strategies, plans and actions which provide protection or alternative modes of operation for those activities or business processes which, if they were to be interrupted, might otherwise bring about a seriously damaging or potentially fatal loss to the enterprises*" (2004, 436). Hence, the

risk limitation plans can be developed following two different strategies: the establishment of contingency/mitigation plans – the proactive strategy - or planning the most effective reaction to have in case of the occurrence of an accident – the reactive strategy.

Figure IX: Risk reaction table:

From: Norrman and Jansson (2004, 440)

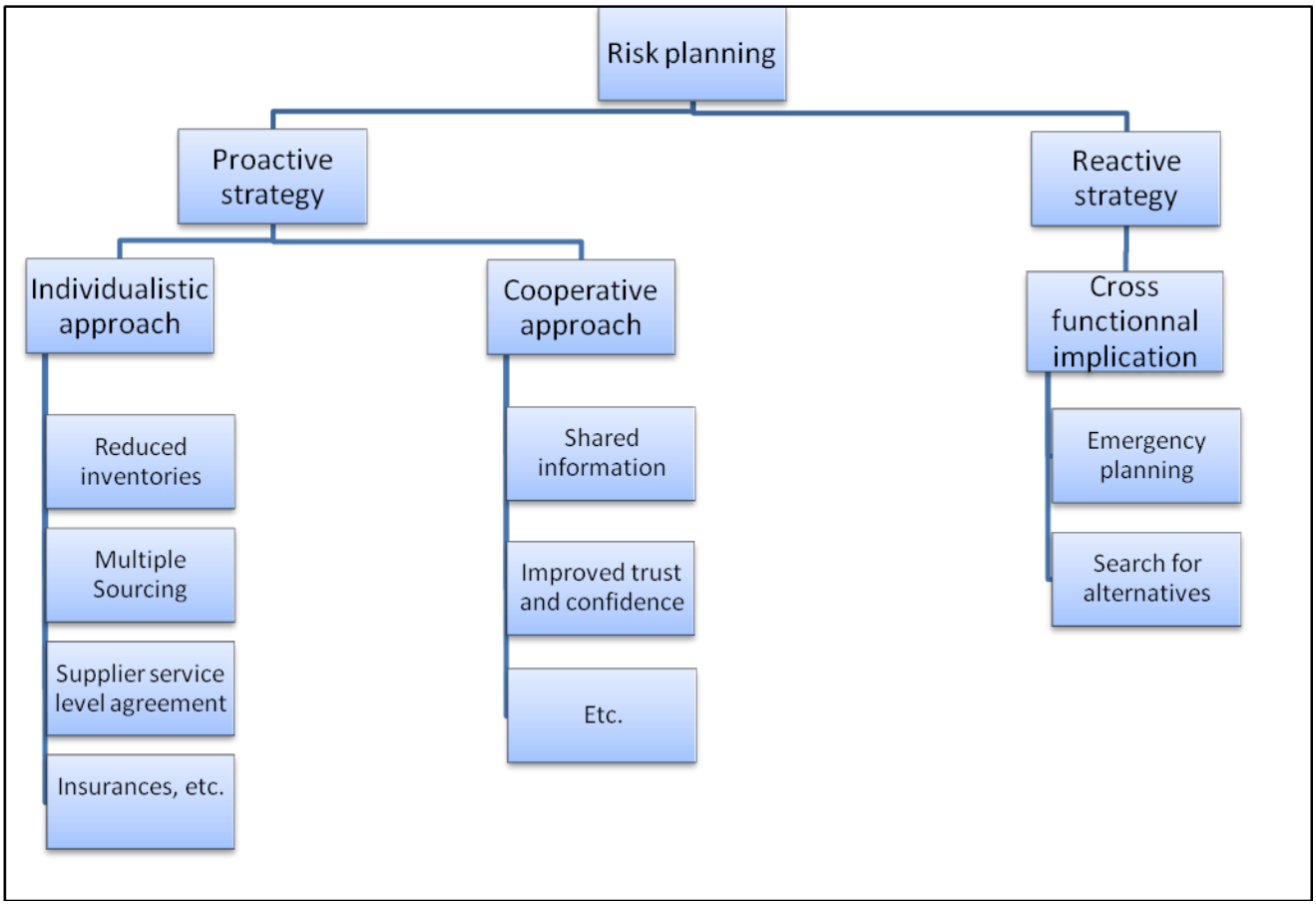
- The proactive strategy:

  Typical mechanisms - such as reducing the excessive use of inventories (Norrman and Jansson, 2004, 434), putting in place an efficient IT system that allows good communication and information sharing through the use of intra- and extranets (Christopher and Lee, 2008, 392; Mihalis and Michalis, 2010, 23), developing effective relationships with the suppliers by improving trust and confidence (Christopher and Lee, 2008, 388; Ritchie and Brindley, 2007, 310), using multiple sourcing (Constantino and Pellegrino, 2010, 27), establishing supplier service levels (Ritchie and Brindley, 2007, 312) ... - are very often used in order to prevent and avoid; or at least mitigate the supply risks.

- The reactive strategy:

  Norrman and Jansson (2004, 440) state that the post-incident strategies are being set up in order to ensure continuity in the supply for finished goods or components. This strategy mainly encompasses two concrete actions: Building up a cross-functional team in order to handle the emergency management (Manuj and Mentzer, 2008, 190) with a larger number of point-of-views on the problem. The second one is the focal firm's search for supply alternatives in order to be able to continue its business activity (Norrman and Jansson, 2004, 440). The following table synthetizes the risk planning strategies.

Figure X: Risk planning table



Adapted from: Tummala and Schoenherr (2011); Norrman and Jansson (2004); Manuj and Mentzer (2008); Ritchie and Brindley (2007); Christopher and Lee (2004); Mihalis and Michalis (2010).

Phase 3: Risk control and monitoring

In the last phase of the Supply Chain Risk Management Process, Tummala and Schoenherr (2011, 480) describe the importance of putting a monitoring, tracking system in place. It is important to establish metrics and indicators and to collect data to evaluate the overall performance of the plans developed (Ritchie and Brindley, 2007, 319). Tummala and Schoenherr highlight that the control initiatives "*can be used not only for effective monitoring and the taking of corrective actions, but also for continuous improvement of risk assessment and management*" (2011, 480) In that regard, the authors are joined by Chae (2009, 422) that states "*Measuring or monitoring supply chain performance reveals the gap between planning and execution and helps companies to identify potential problems and areas for improvement."* Ritchie and Brindley (2007, 319) reiterate that the development of monitoring systems helps the organizations to continuously adapt the strategies in place. In fact, the evolution of metrics reflects the impact of the risk-mitigation strategies on the environment which is continuously changing and evolving; decisions and adaptations must then be made when the firms' position towards the risk has changed.

As a matter of fact, when it comes to measure performance of the supply chain plans, a group of metrics should be established with regard to the ranking assessment that has been established during the second phase of SCRMP. And successively achieving performance monitoring and control of the risk-mitigation strategies is done by developing metrics that are "*both measurable and meaningful in the practical context*" (Ritchie and Brindley, 2007, 319). In addition, Chae's findings indicate that overall *"'less is better' as to developing performance metrics. Companies should focus on only a small list of KPIs which are critical for their operations management, customer service, and financial viability. Potential KPIs should be developed for each of the supply chain operations (…) and need to be hierarchically grouped such as primary and secondary metrics*" (2009, 422). Shepherd and Günter add an important nuance on the establishment of metrics. In the same sense as Chae's findings, the authors recall the importance of "*developing measures of supply chain performance as a whole, rather than measures of inter-organizational performance"* (2006, p. 253), but they also point out the current lack of qualitative metrics and non-financial measures as being a crucial topic to develop.

2.1.3. Conclusion of SCRM

Overall, SCRM allows reducing the supply chain risks (Norrman and Jansson, 2004, 455). Fisrtly, risk reduction leads to "*reduction in loss, probability, speed, frequency, and/or exposure of risk events*" (Manuj and Mentzer, 2008, 210). Christopher and Lee argue that it also helps to restore confidence throughout the supply chains and that risk reduction also "*leads to increase in sales and market share, penetration to new markets, and speedy new product introduction"* (2004, 394); which were the major objectives of outsourcing. Secondly, Norrman and Jansson (2004, 455-456) insist on four major areas that companies should keep in mind when managing supply chain risks: supply chain costs, supply chain time, supply chain quality and supply chain agility. SCRM should mainly aim at improving those four supply chain areas. Finally, Tummala and Schoenherr (2011, 480) conclude their study by emphasizing about the need of using SCRM as an ongoing process that constantly needs to be reiterated. It is the only way for that process to be efficient because of the changes that might occur in the environment. In fact they underline that: "*Risk tolerances may also change, as may prevention costs and severity levels. Therefore, a continuous monitoring and assessment should be practiced"* (2011, 480).

2.2. Corporate Social Responsibility (CSR) in the supply chain

Svensson and Bååth (2008, 399) state that "*the demand for ethical artifacts has increased*". As a matter of fact, there is a strong risk that companies can be affected due to a lack of transparency or ethics, furthermore in a global supply chain context. In addition to that, Mohr and Webb (2005, 121) emphasize that in the current business trends, environmental concerns enhance the consumer's willingness to pay, more than price does. As an example, the case of Nike's use of child labor in 1997 in the Third World affected both the company's reputation and sales. A first conclusion can already be drawn: implementing CSR processes in a global supply-chain context is needed for ethical reasons, but also because the non-implementation can result in bad business performance. Furthermore, Kolk and van Tulder (2002, 269) discuss on the importance of establishing "*specific, strictly implemented and monitored*" codes of conduct. Even though Nike's reputation was affected, the firm managed to react well to the critics, and became one of the pioneers of socially responsible business (Porter and Kramer, 2006, 2). In addition to that, it has been discovered that implementing socially responsible management implies a strong attention to the supply-chain approach, and that cooperation from the host country is needed (Kolk and van Tulder, 2002, 260).

As already stated in the background section of this study, the diamond market was highly criticized in the early 2000s due to the fact that it was used to finance armed conflicts in Africa. As a matter of fact, Roberts (1999, 163) emphasized that: *"Brand owners in a whole range of sectors have had their reputation affected by negative publicity about issues in their supply chains, from luxury jewelers being accused of supporting wars in Africa through their use of "conflict diamonds", to chocolate companies being targeted for ignoring the use of slave labor in the production of the cocoa they source for their products."* In order to fight against this situation, the Kimberley process has been implemented by governments, NGOs and the diamond industry. In this regard, it seemed important to discuss the integration of corporate social responsibility through the supply chain.

There exist a lot of definitions of the concept of CSR, but in the context of implementing it on a global supply chain perspective, the point of view expressed by McGuire (1963) is very interesting. In fact he argues that *"The idea of social responsibilities supposes that*

the corporation has not only economic and legal obligations, but also certain responsibilities to society which extend beyond these obligations." In the same sense, McGuire is joined by Gonzalez-Trejo (2013, 370) that emphasizes that CSR "*imply that firms should care about issues that are beyond their economic objectives, and also that the firm should consider ethical behavior when trying to achieve these goals and objectives."* Gonzalez-Trejo (2013, 371) also discusses the concept of Corporate Supply Chain Responsibility (CSCR) that is seen as "*an ethical management approach that has an ultimate goal of improving supply-chain performance; such performance is achieved by respecting all parties' interests, promoting trust, and carefully using appropriate incentives".* In that sense, it seems important for companies to integrate CSR in their relationships with their suppliers. Croxton and Rogers (2001) highlighted the importance of the integration of both internal – cross business units – and external – first tier and second tier suppliers – actors of a company's supply chain in order to be efficient. To summarize, a CSR vision must be shared by the company itself, by the suppliers and the suppliers' suppliers. The authors also recall that supply chain management implies a continuous flow of information; and is by then an ongoing process.

2.2.1. CSR in suppliers' management

Reuter, Blome, et al. highlighted the importance of ensuring "*high social and environmental standards along the supply chain, while simultaneously ensuring economic sustainability of the buying company itself and of its suppliers"* (2010, 56) when developing sustainable global supplier management. The authors also suggest that a continuous and accrued sustainable development with the suppliers improves the quality of the supply chain response to the market's and the stakeholders' needs (for example, new regulations for the Diamond Trade issued by governments or NGOs). It appears that the social and environmental vision and objectives of the business should be shared by all supply chain actors when entering in a "supplier-buyer" relationship. As a matter of fact, literature shows that standards must be established in order to maintain a strong and sustainable supplier's relationship. Furthermore, it must also be added that accrued confidence between the various actors regarding the standards – both commercial and ethics – enhances the quality of the entire supply chain

(Christopher and Lee, 2004, 236). In regard with confidence, Christopher and Lee write that: "*Clearly not all supply chain risk is created through a lack of confidence among supply chain members. However, our contention is that improvements in confidence, as we have defined it [partnership-type arrangement, p. 230], can have a significant effect on mitigating supply chain risk."* In the same sense, Young (2013, 191) also states that increased transparency through the entire supply chain helps the suppliers to develop a stronger relationship with the focal firm. The supplier-buyer relationship should not only be business-based, increased confidence and transparency leads to better economic and ethical results.

The vision of Christopher, Lee and Young is completed by Kolk and van Tulder (2002, 269) that emphasize on the importance of establishing codes of conduct in global supply chains. However, implementing such codes and standards is not an easy issue to manage; both for MNEs and SMEs. As a matter of fact, Pedersen and Andersen (2006, 229) state that "*it is difficult to enforce codes of conduct in global supply chains, because the involved companies are separated geographically, economically, legally, culturally and politically. In consequence, introducing codes of conduct in global supply chains raises a series of agency problems that may result in non-compliance (…)can have severe consequences for the initiator (due to consumer sanctions, negative press, capital loss, government interventions, damaged brand, etc.) "*. Both authors argue that companies – mostly MNEs – have established a number of codes of conducts to be applied through the entire supply chain. Nevertheless, these codes are often criticized as they are not constraining enough and that their application remains free of choice for the supply chain's stakeholders. Utting(2000, 12), based on the studies of Kolk et al., states that "*Codes very often remain at the level of lofty principles and well-intentioned policy statements that are not effectively implemented*". In fact, the establishment of codes of conduct is often resulting from a top-down approach, meaning that the company directly dealing with the end consumers generates the incentives to be applied by all actors (Pedersen and Andersen, 2006, 233). This situation leads to a lack of involvement from the other parties. The authors developed by then suggestions to enhance the suppliers' commitment to common CSR values:

- Joint investments and establishment of codes: Pedersen and Andersen (2006, 233-237) emphasize that the preferred solution might be to establish common

goals together in the "buyer-supplier" relationship. Doing so will result in a higher commitment from the suppliers, and will reduce the supplier's feeling of being obliged to comply with the other party's line of conduct.

- Increased trust: is also seen as an effective way to ensure a higher respect of the codes of conduct established. However, sustainable trust is build up on a very long term basis, so this solution cannot be applied to every supplier.
- Third party monitoring: e.g. industry organization, NGOs, auditors, etc. Pedersen and Andersen (2006, 238) argue that third-party monitoring "*can be a mean to improve the overall credibility of the codes. Codes of Conduct are often met with some skepticism, and failure to ensure compliance with the codes might erode the overall credibility of the buyer's voluntary initiative".* Furthermore, after a long period of successful implementation of the codes, the relationship could derive in an increased trust system, where third-party monitoring is not needed anymore.
- Direct sanction is the ultimate threat to use in order to ensure the good compliance to the codes of conduct. The sanction can be the pure stop of the business relationship. However, the sanction method can only be used when the buyer is the partner that possesses the most bargaining power in the relationship. Furthermore, this method is only credible when non-compliance can be detected.

2.2.2. Social and environmental responsibility in global supply chains

As emphasized by Roberts (2003, 160), ethics is a twofold topic: most companies focus on improving their social and their environmental impact. As a matter of fact, major CSR issues – in the context of a global supply chain – are linked to the capacity of the firm to be able to respond to the social and environmental requirements. In term of social CSR, the companies must focus on offering good wages and working conditions in regard with the sourcing location. Svensson and Bååth (2008, 400) state that "*Durable relationships are seen as a strength and requisite to maintain and defend Ethical Value and Principles*". It is however very important for the firms to establish standards with a long-term view in order to be CSR efficient.

Regarding the environmental management integrated in a supply chain context, De Roeck and Delobbe (2012, 398) define it as *"protecting and promoting the natural environment"*. Lippman (1999, 181) adds that: "*the results of leadership companies' environmental initiatives with suppliers suggest that supply chain environmental management represents an opportunity for companies to generate real environmental and business benefits.*" In fact, environmental concern has been increasingly growing in the consumers' mind over the last decade (Kent and Myers, 2004, 4). And integrating environmental management – through the establishment of standards and laws for example - across the global supply chain is a growing concern for the industries. In that sense, Lippmann (1999, 179) suggests actions that may be taken in order to efficiently implement corporate environmental responsibility management in the supply chain. Here again, the author suggests those recommendations as ongoing and long-term oriented.

- Top-management involvement
- Cross-functional integration within the company
- Effective communication within the company and other stakeholders
- Continuous evaluation of suppliers' compliance with codes and standards

Nevertheless, it is important to note that corporate social and environmental responsibility is more likely to be effectively implemented within big brands firms (MNEs for instance) because they are more likely to exert an important influence on the entire supply chain stakeholders. As emphasized by Svensson and Bååth (2008, 403) *"a company having a financially strong position in the marketplace has a greater possibility to behave ethically and to survey others EVP [Ethical Value and Principles]"*. Furthermore, Roberts (2003, 169) adds that *"individual company action makes little sense. Joint action by the confectionary industry to develop a universal code, influence its suppliers and organize joint monitoring is likely to be a much more effective way forward."*

2.2.3. Implementing CSR management within a global supply chain.

Gonzalez-Trejo (2010, 371) has developed a twelve-step framework synthetizing literature and empirical findings in order to successfully achieve CSR processes in a global supply chain context: the CSCR (corporate supply chain responsibility).

(1) Obtain top management total support and commitment.
(2) Share the implementation plan with suppliers and also obtain their top management support and commitment.
(3) Each company (firm and suppliers), name a person responsible for CSCR implementation. The responsible party should be an individual whose primary functions allow frequent interactions with suppliers and/or buyers.
All of these individuals will form the CSCR team and will be in charge of the implementation with continuous monitoring of the top management team.
(4) Revise exhaustively the plans and expected goals of each member within the supply chain.
(5) Identify conflicting plans and goals.
(6) Prepare alternative plans, with new expected goals, for each supply chain member. Also prepare a detailed argument regarding why each firm should change their priorities and how these changes will benefit them.
(7) Communicate with all the employees about the CSCR program implementation.
(8) Train employees regarding the new program, making strong emphasis in strategies that may help improve communications, trust and cooperation among them, suppliers and customers.
(9) Develop a reward system that strongly supports the new program. A good training program plus a satisfactory reward system should help create employees' support and commitment.
(10) The CSCR team should meet at least once a month to evaluate advances and also to solve possible implementation problems.
(11) The top management of each firm within the supply chain should meet at least once a year; to evaluate the performance advances against each supply member's goals. If any of the supply-chain members did not achieve its expected goals, identify the possible causes and propose alternative solutions.
(12) Continuously monitor, evaluate, and get feedback to improve the CSCR practices among all supply members.

Firstly, it is important to note that implementing CSR in the supply chain process is an initiative that should not be done by a single actor. As a matter of fact, the CSR processes must be respected and put in place at all levels – both internal and external of the company - composing the supply chain. Secondly, it appears that continuous communication between the stakeholders is the key to successfully implement CSCR. Finally, as it was the case for the supply chain management processes and for the supply chain risk management process, the author underlines the crucial importance of putting in place a monitoring and feedback systems in order to continuously improve the implementation of CSCR.

PART C: METHODOLOGY AND CASE-STUDY SECTION

Part C of my paperwork will be developed in three chapters. The first one will focus on defining the methodology used for the case studies: I will define the notion of the abductive approach; I will show how I established the sample of interviewees and I will develop the methods of data collection and analysis used. The two next chapters will discuss the findings and generalize them in terms of supply chain risk management and ethics in the diamond industry and will aim at establishing propositions.

CHAPTER 3

METHODOLOGICAL FRAMEWORK

In the second part of this paperwork I will conduct an abduction study in the sense of Peirce (1955) "*Peirce's theory of abduction is meant to cover both practical reasoning and scientific inquiry."* In fact, abduction tends to highlight assumptions as answers to the research question. The case study that will be developed hereunder does not aim at giving a definite answer to the question; but it aims at giving insights on how the operations should be organized and what strategies could be put in place in order to ensure ethics and risk management across a global supply chain.

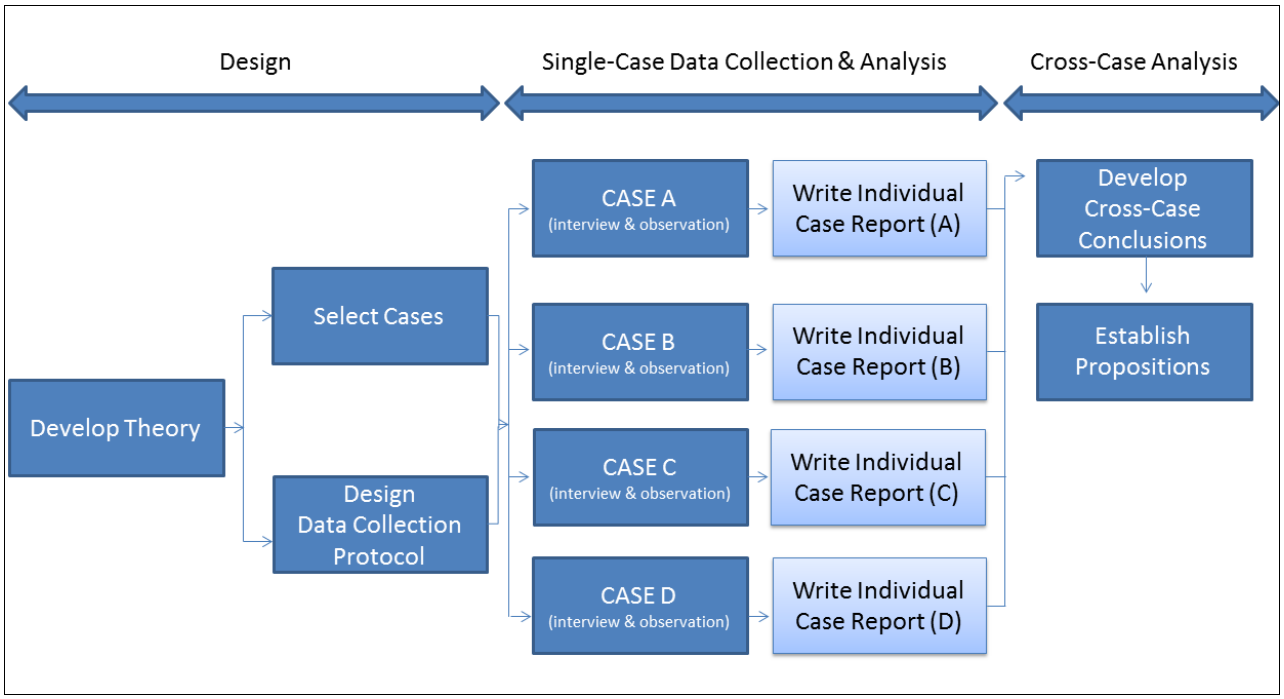
3.1. Case study research

Yin (1984, 13) emphasizes that: "*In general, case studies are the preferred strategy when "how" and "why" questions are being posed*"; before stating that the case study methodology is often used when leading organizational and managerial studies.[2] This research method seems by then very well suited to the initial research question: "How to ensure an ethical and low-risk supply chain when buying diamonds? The case of South Africa." I decided to lead a multiple case study – by interacting with various actors of the diamond supply chain – because Yin suggest that the evidence gathered from multiple case studies are often seen as "*more compelling*" and "*more robust*" (1984, 48).

[2] YIN, R., (1984) *Case study research: design and Methods*, California – USA, Ed. SAGE

Yin's methodology (1984, 50) suggest running case studies by using the following method:

Figure XI: Case study research model:



Based on: Yin (1984, 50)

Firstly, it is important to develop the theoretical background and to review literature over the subject. This has been done in parts A & B of this study. Secondly, the author highlights the importance of selecting relevant cases and to design data collection and analysis strategies. Thirdly, he suggests that an individual case report must be developed for each case. Finally, Yin points out the need of developing cross-case conclusions that may add notions or modify the theory formerly established.

3.1.1. Sample establishment

First of all, the various steps and actors of the diamond supply chain from South Africa must be understood in order to be able to establish a relevant sample. This section will be dedicated to clearly identify how the classical diamond supply chain is composed. The process is composed of seven different steps.

- Step 1: Exploration

  In a report from 2011 made in alliance with the Antwerp World Diamond Centre (AWDC), Baines & Company defines this stage as: *"seek commercially viable diamond resources, usually by finding and evaluating kimberlite and lamproite pipes that might contain diamond ore. When a promising site is located the producers develop and construct new mines."* Geologists have developed new techniques and science to be able to find new diamond mining sites. In the past, the mining discoveries were due to hazard, but now, as states Orru (2007, 179) there is a *"new logic: it is the first indirect discovery due to reliable models. Geophysical surveys followed by ground recognitions in Canada were the key to discoveries in an empty area."* In South Africa, the first major mines were discovered in the end of the 19th and early 20th century. The discoveries were then due to hazard.

- Step 2: Production

  Baines & Company (2011, 19) defines this step as: *"Getting the diamondiferous ore out of the ground usually occurs through open-pit or underground mining. Alluvial and marine mining are two other methods of diamond production. Once mined, the diamond ore passes through various processing stages to extract rough diamonds from it."* This step consists in extracting rough diamond out of the ground in order to sell it.

- Step 3: Rough diamond selling

  Baines & Company's (2011, 19) report emphasizes that this stage consists in the fact that "*Next producers inspect, classify and prepare the diamonds for rough-diamond sales. London, Moscow and Antwerp are the main centers for the purchase and trade of rough diamonds. These primary sales most often take place within the 'sightholder system', a system specific to the diamond industry in which a selected group of verified buyers are allowed to purchase rough product. Other sales channels include auctions and spot sales. »* For example, 90% of the rough-diamond sales done by the South African conglomerate De Beers are done through the Global Sightholder Sales channel (GSS). Ten times a year, events called Sights are organized where diamond buyers can inspect the products and

offer prices without knowing what the other buyers have offered. It is a sort of tender. The rest of the production is sold through classic auctions.

- Step 4: Cutting and polishing

  This step is described by Baines & Company (2011, 20) as : *"This stage, in which diamonds are transformed from rough stones into finished gems, comprises five steps: determining the optimal cut, cleaving or sawing to break the rough diamond into pieces, bruiting to give the diamond the desired shape, polishing to cut the facets and final inspection to ensure quality."* As a matter of fact, most rough-diamond purchasers are cutting the stones in order to sell back the polished diamonds at higher prices. Cutting and polishing requires a high level of expertise. Nevertheless, this function is currently disappearing from the developed countries to be outsourced in emerging countries leading to "diamond-cutting poles" appearing, for example in India. As explained by Alexandrine Bouilhet (2007) in the French newspaper Le Figaro (12/03/ (2007) "*They delocalized the cut of diamonds in India and made Antwerp a suburb of Mumbai."*

- Step 5: Polished diamond sales

  According to the consulting firm's study (2011, 20), the fifth step of the process consists in the fact that "*Polished diamonds get sold to manufacturers for jewelry manufacturing. The sales are transacted either directly by cutters and polishers or through dealers.*" In fact, the polished diamonds are sold to jewel manufacturers in order to produce jewelry.

- Step 6: Jewel manufactory

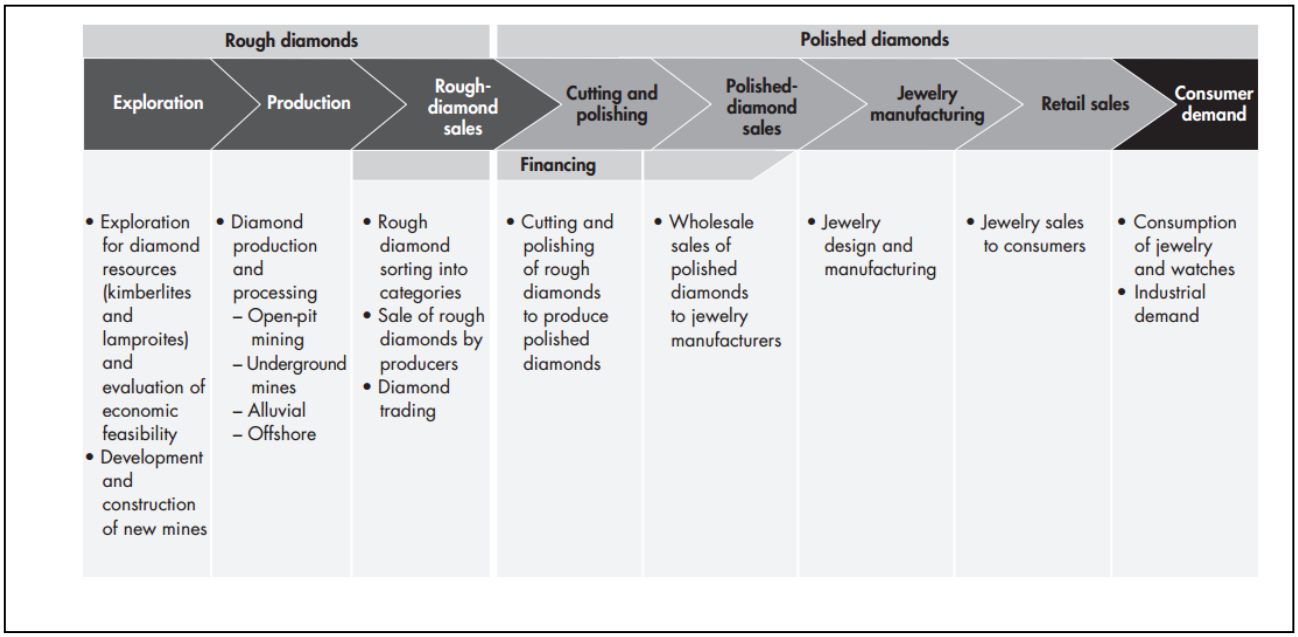
  The following step is then the jewel manufactory, defined by Baines & Company (2011, 20) as the fact that "*Manufacturers use both in-house and outside designers to create their product, and the sector is quite fragmented. Thousands of players ranging from individual shops to large companies such as Tiffany, Cartier"* There exists a very large range of jewel manufacturers.
- Step 7: Retail sales

  The report of Baines & Company (2011, 20) states that *"More than a quarter million retailers sell jewelry to consumers around the world. Retail channels include independent*

stores, mass-market chains such as Wal-Mart for low-end jewelry and high-end specialty such as Harry Winston." The market is very fragmented: a lot of different actors are selling jewelry to the mass market population.

To sum up, the following table shows the various steps in a synthetic way:

Figure XIII: Synthetic table of the diamond supply chain



From: Baines and Company (2011, 20)

Based on the diagram showing the different stages of diamond supply chain developed here above, I thought it was necessary to make the four interviews with the following characteristics:

- Case A: Andrew Bone: Director of International Relations at De Beers Group. De Beers is responsible for the three first steps of the diamond supply chain from South Africa. As a matter of fact, the South African conglomerate is responsible for exploration, production and rough-diamond sales.

- Case B: David Siessmann: Rough diamond buyer and sales person for Celinni. Celinni is a company active in the fourth and fifth steps of the diamond supply

chain. As a matter of fact, this firm buys rough diamonds, cuts them and sells polished diamonds.

- Case C: Gilles V. (he preferred to speak anonymously) possess a jewel store in Antwerp. His company is responsible for the sixth and seventh steps of the diamond supply chain. In fact, Gilles V. buys polished diamonds, manufactures jewelry and sells it to the end consumer.

- Case D: Margaux Donckier: is responsible for the media & press relations at the Antwerp World Diamond center (AWDC). AWDC is a public, private corporation officially representing the Antwerp diamond sector. The diamond office (DO) - one the units of the corporation - serves to streamline the imports and exports in and out of Antwerp. AWDC was also very supportive for the implementation of the Kimberley Process and always supports the industry's CSR initiatives. In that regard, I thought it was necessary to manage an interview with AWDC as well.

The interviewees have been selected according to the following criteria which have been suggested by Manuj and Mentzer (2008, 193): their credibility and transferability (the actors must be credible and it must be possible to generalize the findings).

3.1.2. Data collection

In order to collect information, I opted for a qualitative approach from semi-structured interviews.

My interviews will be conducted using an interview guide that will be partly directional (for themes or objects on which I want to collect information) and partly non-directive (within subjects themselves). De Ketele and Roegiers (2006, 171) emphasize that this type of meeting has two main advantages: *"information that one is seeking better reflects the representations than in a structured interview, as the interviewee has more freedom in how to express himself. Furthermore, the information that is to be collected is gathered in a shorter time than in a free interview, which never provides an assurance that relevant information will be delivered. »*

As suggested De Ketele and Roegiers (2006, 147) I will seek to gather information relating firstly on facts and secondly on representations. On facts, this will be done in the

sense that it is *"to focus its attention to the characteristics of the situation".* On representations this will be done from the perspective that this collection will also focus on *"collecting opinions or ways of perceiving reality"* These two aspects, related to the data collection of our qualitative research, seem particularly suited to the model I seek to study.

I opted for individual interviews instead of group interviews because in the latter, Albarello (2010, 63) warns on the *"risk that some people are developing a stronger social control and others are reluctant to express their views to a group".* The author also adds that *"the group interview is not recommended if the researcher attempts to identify with the greatest precision, the most 'pure' opinions of the different subjects interviewed. If they wish so, the single interview is most relevant".*

Each interview lasts between 15 and 30 minutes and takes place at the interviewee's best convenience. This allows the interview to be rather complete and to explore many subjects without interrupting the "day-by-day" work of the respondent for too long.

3.1.3. Research areas to explore

Risk management:

- Sourcing in emerging markets to access raw material and/or to gain competitive advantages
- Implementation (or not) of SCRM at the various levels of the diamond supply chain
- Risk identification, measurement and assessment strategies
- Risk evaluation and planning strategies
- Risk control and monitoring strategies
- Tracking performance and use of metrics
- Comparison of the various practices used to manage the risk at the various stages of the diamond supply chain
- Communication between the various actors
- Difference between MNEs and SMEs' practices

- Use of formal (contracts, specification …) and informal (communication, trust, confidence …) techniques in order to develop SCRM strategies.

Corporate social responsibility:

- CSR practices in the diamond supply chain
- Communication over CSR
- Laws and industry's involvement to comply with CSR principles
- Establishment of codes of conduct

3.1.4. Data analysis

The fourth chapter of this paperwork will discuss the single case analysis and the cross-case findings that will aim at synthetizing the findings and establishing propositions. Each single case study analysis will be divided in three parts:

- SCRM practices
- "Buyer-supplier" relationship, communication and integration
- CSR practices
- Synthetic summary table

After that, based on the single case reports formerly established, a fifth chapter will review the cross-case findings and will highlight and synthetize them.

3.1.5. Validity and reliability

In order to conclude the methodological framework, it is necessary to emphasize that the propositions that will be presented in the last chapter will remain at the stage of assumptions/insights. In fact, the latter will be drawn based on observation and interviews. The point of those propositions will not be to give a final answer to the research question, but rather to lead to further developments, confirmation, modification or rejections in the future.

CHAPTER 4

SINGLE CASE STUDY ANALYSIS

4.1. Case A: De Beers[3]

Andrew B. is the Director of International Relations at De Beers Group. As noted in the methodology section, De Beers is responsible for the three first steps of the diamond supply chain from South Africa (exploration, production and rough-diamond sales). De Beers is one of the major actors of the global diamond industry and is the major actor in South Africa. De Beers is a South African MNE founded in 1888, with mining activities in Southern Africa, Russia and Australia.

4.1.1. SCRM practices

De Beers has paid a lot of attention to supply chain risk management. In fact, De Beers tends to take measures to decrease the supply chain risks linked to its activities.

- Market-oriented decisions,
- pro-active strategies,
- reactive strategies,
- tracking and monitoring

A) Market oriented decisions

Firstly, relying on its dominant market position in the diamond industry, De Beers decided to stop dealing the diamonds in GBP by the end of the 60's and started using USD. This was done because USD was the international currency and De Beers had clients from all around the world. In fact, it was more convenient to avoid exchange rate variations. The strong market position of De Beers has allowed the company to take measures that have been implemented across the entire market.

B) Pro-active strategies

[3] See Appendix 1

De Beers constantly analyzes market data, in order to anticipate and forecast the variations in demand and its ability to respond to it. For example, Andrew B. explains that in recent years, a gradual increase has been seen in the traditional markets (EU, Japan, USA), but there will be a huge increase in the demand from the emerging countries such as India and China. In fact, identification and assessment of every risk and market change is done by De Beers, based on forecasts, experience and observation of existing data.

Diamonds are a very precious resource, so the cost linked to the securitization and handling of inventory is high. De Beers does not want to carry big stocks, so the business strategy of the South African conglomerate is *"very much, assuming the demand, anticipating the demand, and mining diamonds accordingly."* Doing so allows reducing the level of stocks. In fact, Andrew B. says that a certain level of stock is required to take precautions, but the stocks are not that big. The main priority is to be able to respond to the consumer's need, additional buffer inventories are not a priority for the MNE.

Andrew B. notes that the majority of their clients, retailers or jewelers, run their business on a Just-In-Time basis in order to avoid the risks and the costs linked to the handling of inventories. In fact he emphasizes "*they generally tend to light on their inventory".*

Another example of risk being identified, assessed and planned is linked to the very long term depletion of the "mining sites. Andrew B. explains that – as there have been no major mining sites discoveries for several decades – when comparing the forecasted production to the forecasted demand; there is a definite possibility that within "*50 years we may run out of natural diamonds."* And De Beers has absolutely no interest in the production of synthetic diamonds. In fact, the interviewee says "*it is not the same product. Diamonds are an emotional product, if you're going to buy emotionally, in that respect, what do you choose? A piece of diamond that was created something about 3.5 billion years ago under mysterious circumstances and Mother Nature has made no more. Or do you go for something that was created in a factory in Malaysia six month ago?"* In order to fight against this situation, De Beers already invests in geological technologies to discover new mining sites in South Africa, Botswana, Namibia, Canada and India.

C) Reactive strategies

In the end of the 20th century, De Beers started to lose its dominant market position, due to strong development of competition. This would have led to significant losses for De Beers. In reaction, the South African conglomerate started to develop other mining sites, in order to keep its strong market position.

D) Tracking and Monitoring

De Beers uses metrics, and keeps track of the results of the risk mitigation strategies. Market data is analyzed to highlight changes in the environment and to implement or adapt the future strategies.

4.1.2. SCRM in "Buyer-supplier" relationship, communication and integration

De Beers interacts with diamond traders and tends to maximize its profitability while insuring that the goods are sold to trustable buyers. Hence, communication strategies must be developed in their business relationships.

Firstly, the overall visibility of the supply chain is improved due to the convergence of the IT systems used in Europe and those used in South Africa.

Secondly, De Beers uses the Global Sightholder Sales channel (GSS). Ten times a year, events called Sights are organized where diamond buyers can inspect the products and offer prices without knowing what the other buyers have offered. It is a sort of tender. This system is used to sell 90% of the rough diamonds. The rest of the production is sold through classic auctions. The jewelers and retailers invited to the so-called Sights must be trusted by De Beers. However, it appears that De Beers does not develop strategic partnerships with buyers, for two main reasons:

- Due to its strong market position, De Beers is so unavoidable that it does not benefit from developing strategic partnerships.
- Using the GSS allows the company to sell the products at the highest price, furthermore in a "demand-rising" environment.

De Beers uses very experienced third party security firms to handle the transportation of the goods. Here again, the South African conglomerate does not favor strategic

partnership with its suppliers. In fact, the company makes benchmarking to compare the price offered on the market.

4.1.3. CSR practices

De Beers has a significant will of implementing CSR across the entire diamond industry. The company has set up several strategies to manage CSR within the global diamond supply chain. It must be noted that in the diamond supply chain, the CSR is more social rather than environmental.

Firstly, as already stated in the first part of this paperwork, the Kimberley Process aims at eliminating the conflict diamond from the diamond trade worldwide. Not only De Beers comply with the laws and standards required, but the company also supports the Kimberley Process and will always encourage further improvements to it.

The Kimberley process has been successful in insuring that approximatively 99.9% of the diamond trade is composed of "conflict-free" diamonds. It has also led to many benefits for the industry and the governments that have a greater visibility on import and exports thanks to the certification processes.

In addition, the Kimberley Process does not represent too much of a burden for the industry, the cost linked to it is being very much minimized, thanks of the governments' involvement.

Secondly, Andrew B. explains that the implementation of the Kimberley Process has not made any difference in their business activities because De Beers has never dealt in the conflict-diamonds. So the compliance with laws and standards has easily been implemented. The interviewee also adds that the workers are well cared for, and in Southern Africa, De Beers pays its employees above the average wage level. This situation shows that the CSR concern of De Beers goes beyond the scope of the Kimberley Process.

Thirdly, Andrew Bone explains that "*the KP was providing regular tree solutions to conflict diamonds, but they were no developmental solutions in place. So I co-founded something called the "Diamond Development Initiative": the DDI. And that seeks to address*

the socio-economic challenges faced by these communities." As a matter of fact, the Diamond Development Initiative (DDI) created by De Beers has a specific concern in implementing CSR and ethics in the diamond industry. The DDI aims at helping the local (Southern African) population in a socio-economic way. De Beers makes socially responsible investments such as the setup of mobile-schools nearby the mining sites for the miners' children; or sensitization campaign for the Ebola virus raging in Africa.

4.1.4. Synthetic summary table

CASE B	Strategic	Operational
SCRM	• Market's oriented strategies • Pro-active dispositions • Reactive dispositions • Tracking and Monitoring	• Implemented USD as the reference currency • Identification, assessment, planning • Data analysis, forecasts • Investments • Vendor Managed inventories • Search for new sites • Accessing new markets • Metrics, Data analysis
Relationships	• Increased visibility • No strategic partnership • But, buyers' selection • No strategic partnership or integration with suppliers	• IT integration • GSSC • Auctions • Trust and confidence • Respect of the standards • Multiple sourcing • Continuous price comparisons
CSR	• Kimberly Process • Further concern • Diamond Development Initiative	• Compliance with laws and standards • Pays above average • Socio-economic investments (Mobile schools, Ebola sensitization, …)

4.2. Case B: Cellini[4]

The interviewee David S. buys rough stones, cuts them and resells them afterwards. The company Celinni has offices in Antwerp, Paris and Honk-Kong. The company is a small enterprise as it employs only six people. Nevertheless, it has a good international presence and benefits from an excellent reputation on the tailored stones market. They are very often in contact with De Beers, which is one of their main rough stone suppliers. Sourcing in emerging markets is important for Celinni because of the non-availability of the raw material in developed countries. The point of global sourcing has more an emphasis on the operational point of view. However, the interviewee highlighted that the origin of a stone is important when buying it rough. As a matter of fact, from one country to another, there are higher possibilities to have fewer leftovers after having polished the stone (e.g. when buying a rough stone of 2carats; once tailored, the stone will only weigh 1.2 carats). In that sense, there is a strategic purpose of sourcing in emerging countries, as it may allow gaining a competitive advantage for the company. Just like in the previous analysis, I will proceed methodically by comparing the elements of the interview to the different parts developed in the methodology.

4.2.1. SCRM practices

There is no actual three-phased (identify, assess and measure, control) supply chain risk management system in place at Celinni's. This situation is described as due to the fact that the diamond supply chain is quite risk-free. In fact, David S. explains that the diamond market is well-oiled and that risk management is not a major concern for its company regarding its daily business operations. However, the absence of risk's influence on the business takes its origin on two main reasons:

- The diamond market itself
- Pro-active risk management strategies

[4] See Appendix 2

A) The diamond market itself

First of all, the entire market takes place in USD, any price fluctuations due to the currencies exchanges rates will not interfere in the stone's value.

Secondly, David S. states that the demand remains highly stable as he explains that "*European women are increasingly equipped by solitaries (note: ring with a single diamond) for wedding proposals, and proposals are regular all year*", even if he adds that « *culturally, celebrations like Mother's Day, Valentine's Day, or like Christmas, we know that at those periods, by definition, people need to buy jewelry for women and to buy jewelry to please."* So it seems that while in general, demand is relatively constant, it increases appreciably at certain periods. But David S. does not feel the need to use forecasting tools in order to meet these seasonal variations; because they are not likely to affect Celinni's business. (Note: In fact, even if no formal SCRM tool has been used, this risk has been identified and assessed, but based on the company's experience in business.)

Thirdly, the diamond market supply also remains highly stable over time, according to him « *the diamond reserves in Belgium or in Europe seem sufficient, to get precious rocks in a short time without any problem."* He even adds that "*the rough diamond producers do not flood the market and keep their stocks in their vaults."* Later in the interview, David S. gives the following example: "*De Beers has in its coffers at least twenty years of ahead stock."* Consequently, the available supply in the market is in line with demand, so as to stabilize price levels.

B) Pro-active risk management strategies

The main risk mitigation strategy that Celinni implemented is linked to its daily business activity. As a matter of fact, as David S. told us, the company handles its business activities using Just-In-Time. Celinni is able to set up this strategy because of the large supply available on the market. Indeed, « *rough diamond producers do not flood the market and keep their stocks in their vaults."* It is therefore possible for diamond buyers to supply for stones in a relatively short period of time. Moreover, the constitution of large stocks is very expensive in terms of maintenance. « *There are very complicated standards: lock, alarm, telemonitoring, police connection. In fact,*

there are a number of things that are imposed by insurers. (…) Well it's required, and it's very expensive. It is worth more than € 100,000 per office."

This allows eliminating or at least mitigating the risks linked to the securitization of the goods and to the constitution of stocks. As a matter of fact, those costs are very expensive as diamonds are a very precious material. However David S. adds a particularly significant nuance in regard with the customer's culture: « *In Europe, people need to know what they are buying and to touch it with their own hands."* This cultural reality requires for him to have a small concrete stock of items to be presented to the clients. He also argues that in Anglo-Saxon countries that reality is different insofar « *in the English- speaking countries people do not need to see the stocks. »*

4.2.2. SCRM in "Buyer-supplier" relationships: communication and integration

Firstly, David S. insists on the fact that when placing an order to a supplier, tender specifications must be established, and that there is a strong need to control the delivered goods. The tender specifications have a main focus on the 4Cs determining the quality of a gemstone: clarity, carat, cut, color.

Secondly, David S. adds that "*You must add a fifth C, and perhaps the most important, which is the C confidence (trust)".* As a matter of fact, for him, the confidence in the production channel and in the seller is essential. David S. chooses in priority to only work with a professional and authorized dealer.

However, he points out, that even if trust is necessary when selecting a supplier, he does not favor buying from a single source. He asserts: « *I prefer to have several sources to compare prices and quality depending on the offer".* He also added that the offer can change from one day to another: "*The supplier A can be more expensive than the supplier B on Monday, and vice versa on Tuesday."* This reality requires him to conduct comparative analysis which he says must be done « *Every minute, every hour, always! »* The comparative analysis must also be done for the transportation suppliers: « *We are constantly looking for the best prices for transportation."* According to him, this is due to the prices charged by insurance covering the safety of such transport.

Finally, David S. emphasizes *"there is a 100% convergence between our computer systems and those used in South Africa".* In fact, there is an IT integration that simplifies the relationships between the supply chain's stakeholders and allows a better visibility across the global supply chain.

4.2.3. CSR practices

The major concern of CSR in the diamond supply chain is social, rather than environmental. As stated in the case study A, the Kimberley Process aims at eliminating the conflict diamonds from the diamond trade. In that sense, there is a definite regard of CSR within the diamond supply chain.

However, David S says from the outset that it is difficult to be 100% sure of compliance and ethical guaranties driven by the KP. Nevertheless, he adds that "*what is certain is that the KP guarantees the agreements between the governments and in accordance with the rules issued by the UN."* Furthermore, according to his official sources "*100% of diamonds that have the Kimberley Process do not come from conflict zones".*

David S. adds that compliance with the industry standards and with the Kimberley Process leads to improved working conditions for the minors and an increased ethics across the supply chain. In fact, he states that "*the only ones who may be working in difficult conditions are the people who are in conflict zones."* Therefore, according to David S., the Kimberley Process seems to maintain compliance with ethical guarantees in trade. In the same sense, he states that "*we have less and less 'small hands' that are alluvial (note: diamond mining in rivers) or make small productions to finance armed militias."* Thus, the Kimberley Process, according to David S. also helps to eliminate labor exploitation of those he called "little hands".

At the level of his own professional arrangements, he says without hesitation: « *It's simple, or it is Kimberley, or illegal. »* He even adds that according to him: « *it is important to work with a professional and certified dealer."* In the case of David S., the reference to the Kimberley Process in all of its trade relations seems to be an unavoidable principle.

Celinni does not develop further CSR initiatives, within the company, or in association with suppliers. In fact, it appears that the legislation in place encompasses all of the business ethics needed from such an industry.

4.2.4. Synthetic summary table

CASE B	Strategic	Operational
SCRM	• Not a major concern • Market's organization • Pro-active dispositions • Increased visibility	• Based on experience • Supply and demand stable • USD globally used • Just-In-Time • Small inventories • IT integration
Relationships	• Supplier selection is important • Supplier's ability to fulfill the orders • No strategic partnership	• Trust and confidence • Tender specification • Respect of the standards • Multiple sourcing • Continuous price comparisons
CSR	• Kimberly Process • Industry standards • No further concern	• Compliance with laws and standards

4.3. Case C: Gilles V.[5]

The interviewee: Gilles V. buys polished diamonds, manufacture jewelry and sell his creations in his store in Antwerp. His company is an SME as he runs it with his wife and employs 6 salespeople. He does offer a small jewelry collection composed of: "*two rings, two bracelets, two necklaces".* In addition, the jeweler also offers the opportunity for the customers to "*come up with a drawing of what they want; for engagement rings for example"* and to produce it. The rest of his sales are composed of specific orders. Just like in the previous analysis, I will proceed methodically by comparing the elements of the interview to the different parts developed in the methodology.

4.3.1. SCRM practices

Gilles V. does not use a proper three-phased supply chain risk management system in order to hedge against the risks. As highlighted in the CASE B, Gilles V. also describes the diamond trade as being risk-free. Nevertheless, he explains that the demand risk was quite significant regarding its business: *"selling bad is quite a big risk".* As a matter of fact when we asked him the main risk that he is facing for his jewelry store, he stated "*I would say leases. There are leases for nine years, so it is long. You must know how to anticipate and to cover if you sell bad."*

However, the low-risk environment of jewelry in Antwerp is due to three main factors:

- The diamond market itself
- Pro-active risk management strategy
- Reactive risk management strategy

A) The diamond market itself

First of all, the entire market takes place in USD, any price fluctuations due to the currencies exchange rates will not interfere in the stone's value.

Secondly, the supply of tailored stones in Antwerp is highly sufficient to respond to the demand. According to Gilles V. "*there are a sufficient number of suppliers in*

[5] See Appendix 3

Antwerp to be able to respond to the demand". He even adds that *"there are too many suppliers"*. Those market conditions offer to the interviewee the possibility to procure diamonds in a short period of time if the demand is suddenly increasing.

B) Pro-active risk management strategies

There are pro-active risk management strategies that the jewelers put in place. The first one is linked to the business activity itself. For several reasons, Gilles V. uses a mixed strategy to run its daily business activities:

Firstly, he explains that: "*Here in the city, as it is difficult to sell expensive stuff, it is usually up to 2.5 carat stones, so mostly 'cheap' market";* and that is why he has *"a small collection of jewelry: two rings, two bracelets, two necklaces."* The independent stores selling very expensive jewelry are currently disappearing from Antwerp. He even adds that: "*I have not much demand for the more expensive stones."* He keeps "*only five of each piece, not more"*. Once an item is sold, he reproduces one to maintain a stable level of stock; he always keeps the same stock in his cheap collection. He works like that because according to him *"there are never big peaks in demand that I cannot respond to"*. Later in the interview, Gilles V. will state that he does *"not really sell more during certain periods"*. So, seasonal variations are not influencing the business volume of the interviewee. The first strategy that he developed was to manage a small inventory. Using this strategy allows him to reduce the risks and the costs linked to the handling of inventories and to securitization.

Secondly, as already noted above, Gilles V. offers a small jewelry collection but - for the more expensive stones - also the opportunity for the customers to "*come up with a drawing of what they want".* According to Gilles V. "*there are a sufficient number of suppliers in Antwerp to be able to respond to the demand".* He even adds that *"there are too many suppliers"*. Those market conditions offer to the interviewee the possibility to procure diamonds in a short period of time if the demand is suddenly increasing. This state of affairs offers the possibility to Gilles V. to use a Just-In-Time strategy when buying more expensive precious stones.

Thirdly, he says that "*for the more expensive stones, I do not take stock. I make to order".* As a matter of fact, later in the interview, the jewel retailer summarized this situation in saying that "*everything that is more expensive, it is made to order. It takes*

10, 14 days and it's ready." He further explained how he does supply for diamonds when he has a specific order to fulfill: "*first, I am going to the suppliers to take the stone under deposit."* He uses this technique because he says that: "*if I buy it, I have it in my stock".* Gilles V. does not want for this scenario to happen. Because having a very expensive diamond in its store would mean that the risks would increase, and if the stone does not please its clients, he cannot return it. This is why he completed his statement by underlining that: "*it's better to first take the stone under deposit, to see if it pleases the customer, after that I take a partial pre-payment, and finally I receive the invoice of the stone."* This is why Gilles V. uses a Make-To-Order strategy when producing more expensive jewelry.

Hence, the business strategy used by Gilles V. to conduct its daily activities is threefold: a small vendor-managed inventory, Just-In-time when buying raw-material, Make-To-Order when producing more expensive jewelry.

Finally, Gilles V. states that: "*there are probably reserves that are made in order to adapt the supply with the market demand so the market price remains quite high and stable"*. Nevertheless, the jeweler notes that: "*the market is changing a lot."* For example, he explained that: "*in a simple white stone, there are several color qualities, purities and in addition to that, depending on the demand, the price can go up or down"*. According to the interviewee, there is no way of being sure that the market of polished diamonds remains stable. This is why he adds that jewelers must manage a sufficient margin in their selling price to be sure to stay profitable with the variation of prices: "*that's why we need to take a certain margin. For the same sale price, the jeweler may earn well, take a good margin, or not at all."*

C) Reactive risk management strategy

Gilles V. highlights a big change in the market: "*thanks to the internet, people are much more aware. They realize that the prices were too expensive during the previous twenty years.* The consequence of this is that the: "*small jewelers who used to sell expensive stuff are increasingly disappearing."* He finished by saying that in order to fight this situation, the famous brand retailers create strong brand image in order to maintain higher prices in their stores: "*those who make a branding: Tiffany, BVLGARI,*

etc." However, the average jewel retailer does not benefit from the strong brand image that characterizes the giants of the jewel industry.

4.3.2. SCRM in "Buyer-supplier" relationships: communication and integration

The jeweler states that: "*the main characteristics for a customer (when buying a stone), it is primarily the size and the price. They do not know much more about the product."* Regarding the latter statement, one can say that, even if the 4Cs (cut, carat, color, clarity) are important, the price and the size are also crucial factors to respond to the demand.

Gilles V. emphasized that "*what is important when buying a diamond stone, as a jewel retailer is the price"*, before adding that "*It is also important to check the stone with machines, under the microscope."* In fact, it is absolutely necessary for "*all the characteristics to correspond to what is on the certificate. I mean the weight, color, purity and "make", how it was cut, and fluorescence."* It is by then necessary to establish tender specifications for the supplier and to control the conformity when buying a stone.

Gilles V. has a twofold relationship strategy in term of supplier selection. On one hand, he stated that when he has to purchase a diamond: "*if it's for my own collection, I bought it to someone I know because I know exactly what I need."* It appears that when it comes to regular commercial transactions, the interviewee favors a partnership with a single supplier. On the other hand, when he has to make a purchase of diamond for specific orders; Gilles V. explained that he runs comparative analysis of the various deals offered. In fact he stated that: "*I visit the websites where offices expose their deals, I look at what interests me and then I go see it in real life"*. The interviewee uses both multiple and single sourcing in order to procure polished diamonds.

4.3.3. CSR practices

Gilles V. explained that at his own level of the diamond supply chain, the question of guarantee offered by the Kimberley process was already solved. At his own level, he purchases polished diamonds in order to manufacture jewelry and sell it in his store. As stated by Gilles V.: "*If it is a polished stone, she already has a certificate, she has a*

Kimberley". As a matter of fact, later in the interview he adds that: "*A cut stone has always already been controlled"*.

However, Gilles V. states that "*there are still a lot of traffickers, to which you can buy a stone, but it is not 'Kimberley' certified."* Obviously, the interviewee is referring to rough diamond stones as the polished ones have always been already certified. But still, it is interesting to point out that it is possible to purchase rough diamond stones that aren't certified. He continues by saying that the small illegal traffics are marginal regarding the entire diamond market: "*The Kimberley Process is 99% of the market, the rest is black. As in any other market, there is always a small 'cheating part'."*

At the level of his own company, Gilles V. does not develop further CSR initiatives because it is not a major concern for him. Furthermore, he adds that that compliance with laws and industry standards are constraining enough and insures ethics in the diamond supply chain.

4.3.4. Synthetic summary table

CASE C	Strategic	Operational
SCRM	• No three-phased model • Market's organization • Pro-active dispositions • Reactive dispositions	• Identification and measurement based on experience • Large supply available • USD globally used • Just-In-Time • Small vendor managed inventory • Make-To-Order • Customization • Building Brand Image
Relationships	• Strategic partnership with "regular collection" supplier • No strategic partnership for specific orders • Control supplier's ability to fulfill the orders	• Single sourcing • Trust and confidence • Multiple sourcing • Continuous price comparisons • Tender specification • Respect of the standards
CSR	• Kimberly Process • Industry standards • No further concern	• Compliance with laws and standards

4.4. Case D: Antwerp World Diamond Centre[6]

"The AWDC is the umbrella organization that represents the Antwerp diamond industry." Margaux D. is responsible for the media & press relations at the Antwerp World Diamond center (AWDC). AWDC is a public, private corporation officially representing the Antwerp diamond sector. The diamond office (DO) - one the units of the corporation - serves to streamline the imports and exports in and out of Antwerp. In addition, Margaux D. underlines that "*Antwerp is the largest diamond trading hub worldwide. 84% of all rough diamonds and 50% of all polished diamonds worldwide pass through Antwerp."* AWDC took part in the "*global partnership between government, industry and NGOs"* aiming at the implementation of the Kimberley Process; AWDC does also always support the industry's CSR initiatives. Margaux D. explains that the "*Diamond Office (DO) acts as supervising body for the Belgian government, for all import and export of all types of unset polished and rough diamonds, industrial diamonds, synthetic diamonds and diamond powder, natural as well as synthetic. The DO does this in collaboration with FPS Economy and FPS Finance (Customs). DO is the only customs office in Belgium where diamonds can and must be declared for import and export outside of the EU. Every rough diamond that passes through DO with its KP certificate and thus is traded in Antwerp is conflict free. When it leaves Antwerp, it receives a new certificate. This process is repeated when the stones enter a new market."* The Diamond Office controls and certifies diamonds entering the European market. This allows ensuring ethics for the precious stones procured from emerging markets and being sold in Europe.

4.4.1. SCRM practices

AWDC is not a diamond trading company, so SCRM is not relevant to their business strategy. However, based on its market experience, AWDC describes risk mitigation strategies linked to the diamond market's organization itself.

Firstly, Margaux D. states that due to the large amount of companies that are registered, Antwerp is the best place to sell or to buy, rough or tailored diamonds. She explains that

[6] See Appendix 4

"*Antwerp remains the most important diamond trading hub worldwide and the best place for every buyer to find a seller and for every seller to find a buyer for its goods."*

Secondly, AWDC recalls that US Dollar is used to handle the entire diamond market worldwide, which allows ensuring zero-price fluctuations due to currencies' exchange rates.

Thirdly, based on its industry's experience, AWDC emphasize on the need for the diamond traders in Antwerp to manage large profit margin because the raw material prices tend to increase. This is mostly due to the strong position of the mining companies.

4.4.2. "Buyer-supplier" relationship, communication and integration

AWDC is not a diamond trading company, so it does not establish common goals and strategy with buyers or suppliers. However, the existence of AWDC increases the global communication across the industry actors.

In addition, in terms of "buyer-supplier" selection, AWDC always advise to buy diamonds with a certificate from a certified dealer, and to establish tender specification when placing an order.

4.4.3. CSR practices

Firstly, the major advancement in term of CSR across the diamond industry started in 2003: the "*KPCS (Kimberley Process Certification Scheme) which is a voluntary collaborative partnership between international governments, NGOs and the diamond industry to banish conflict diamonds from international trade."* It aims to banish the conflict diamonds from the diamond market through the use of an ongoing certification process. Thanks to these measures, diamond has become the most controlled mineral in the world to this day. AWDC actively participated in the establishment of the Kimberley Process.

Secondly, AWDC created the Diamond Office that controls the minerals and issues

certificates. Margaux D. explains that "t*here is a 100% check, all imported and exported shipments are controlled."* In fact, a team composed of experts opens all shipments and controls every stone and trade documents to ensure the respect of the legislation and standards. The point is to ensure that *"all diamonds that are placed on the value chain, comply with all rules and standards."* In ten years of Kimberley Process, the proportion of conflict diamond traded in Antwerp has fallen from 15% to 0.2%. In that sense, the Kimberley Process has a definite socially responsible effect on the industry.

AWDC also organizes "Review Missions" where mandated experts perform *"independent checks on the export control system, to determine whether or not the countries meet the KP minimum requirements."* The control process is ongoing, as it is done several times:

- At the extraction
- When entering a market
- When leaving a market and entering a new one.

Finally, AWDC always expresses its full support to further CSR initiatives in the industry that are going beyond the scope of the Kimberly Process. AWDC is also actively lobbying to extent the current definition of the Kimberley Process, in order to avoid using "violence-related diamonds"; coming from conflict zones or not.

4.4.4. Synthetic summary table

CASE D	Strategic	Operational
SCRM	• Market's organization • Advising buyers	• Large supply available • USD globally used • Take sufficient margins
Relationships	• AWDC is in itself a great communication tool for the diamond supply chain stakeholders • Control supplier's ability to fulfill the orders	• Interaction with jewelers, diamond traders, and suppliers • Tender specification • Respect of the standards • Certified dealers and certificate for stones
CSR	• Kimberly Process • Industry standards	• Helps at creating and developing the KP • Perform controls in mining plants • Perform controls when entering EU • Compliance with laws and standards • Supportive of more constraining measures • Supportive of CSR initiatives

CHAPTER 5

CROSS-CASE STUDY ANALYSIS

This section will aim at identifying the findings from the single case studies and, by crossing them, at highlighting propositions that will complement the literature. The propositions that will be presented here under will remain at the stage of assumptions/insights because they are pointed out of observation and empirical findings. However, they might lead to further developments, confirmations, modifications or rejections in the future.

5.1. Sourcing in emerging markets

When buying diamonds, sourcing in emerging countries is an operational necessity because of the non-availability of the raw material in developed countries. In fact, both interviewees from Case B and Case C acknowledge that the sourcing in emerging markets was responding to the operational needs of their companies. However, they both pointed-out the low-risk environment when buying diamonds in South Africa (among others to De Beers).

De Beers is a South African conglomerate which possesses subsidiaries in UK, North-America, Luxemburg, South Africa and Namibia, and is described as being one of the leading companies on the market of diamond mining and trading. The company's reputation is well-known across the industry.

In fact, sourcing to a local company which organizes its business operations and its company's hierarchy in an "European-American-like" way has the effect – for the buying company – of increasing confidence in the selling company; which by then, leads to a risk reduction feeling (e.g. increased sustainability, increased quality perceived, less default risk).

Proposition 1: The risks associated to sourcing in emerging markets are likely to decrease when the vendor's company is a MNE present in developed markets.

5.2. SCRM linked to the market position of a company

Firstly, De Beers (Case A), relying on its dominant market position, decided to stop dealing in GBP and switched to USD because it was more convenient – as they were having an international demand for their goods – and because it would protect the company against the currencies' exchange rate risk. At the time (end of 1960s), De Beers had such a strong position on the market that the entire industry followed this initiative.

In fact, Celinni (Case B) acknowledges that the diamond market takes place in USD so the currencies price variations do not interfere in the precious stone's value. David S. also recognizes that the company De Beers had another influence on the overall diamond market. He states that the South African conglomerate possess in its coffers at least twenty years of ahead stock. Hence, the mining company is able to adapt the supply available on the market in accordance with the demand so as to stabilize price levels.

Gilles V. (Case C) also describes the diamond market as being low-risk. He also acknowledges that the diamond market takes place using USD which allows reducing exchange rate risks, even though he expresses that in general, it would be more advantageous for the European traders to trade in EUR currency.

AWDC (Case D) also acknowledges that USD is used across the entire diamond industry.

Proposition 2: A very strong position on the market allows a company to exercise pressure and influence the environment; by then it allows the firm to reduce risk.

5.3. SCRM at the different levels of the diamond supply chain

Three propositions can be highlighted from the case studies regarding the SCRM at the various levels of the diamond supply chain.

Firstly, De Beers (Case A) faces the risks linked to the country of origin of the mineral extraction. For example, Andrew B. explains that the depletion of the mining sites will become a growing concern for the company in the very long term (approximatively 50 years). The South African Conglomerate also faces the disruption risks or the sovereign risks because their business will be the most affected by losses in the supply chain.

Hence, De Beers has had to develop new mining sites – among others – in Canada and India.

In comparison, Celinni (Case B) says that the diamond market's offer in Europe is widely sufficient to procure diamonds in a short period of time. So there is always a possibility to find alternatives to supply for rough diamonds for societies based in Europe.

In addition, Gilles V. (Case C) states that the number of suppliers for tailored stones is so wide in Antwerp that there will always be a possibility to procure diamonds in short periods of time.

AWDC (Case D) also points out that due to the large amount of companies that are registered, Antwerp is the best place to buy rough or tailored diamonds.

Proposition 3a: When a large supply of a good is available in developed markets, most of the supply chain risks linked to the sourcing country (disruption risk, sovereign risk, depletion …) are carried out by the local (supplier) companies.

Secondly, De Beers (Case A) explains that Supply Chain risk management is a big concern for the company. In fact De Beers uses identification, assessment and planning strategies based on market data and corporate data analysis, and based on forecasts. De Beers also uses metrics to control its risk management strategies and to track data in order to continuously assess the market's evolution.

In comparison, Celinni (Case C) and Gilles V. (Case D) both acknowledge that the supply chain risk management is not a big concern in their respective business activities. In fact, risk identification and assessment are mainly based on their market's experience and observation.

Proposition 3b: SCRM's concern of the companies increases parallel to the financial and operational resources of the companies. The more money a firm has, the more it can invest in SCRM.

Thirdly, De Beers (Case A) develops risk management plans that are both pro-active and reactive; the measures that are taken by the South African conglomerate are mainly operational such as: the use of vendor-managed inventories, investments made in order to discover new mining sites, etc. And in comparison, Andrew B. acknowledges that no

strategic partnerships are established with other stakeholders of the supply chain. Furthermore, the Global Sightholder Sales Channel is successful due to the non-existence of strategic alliances.

In parallel, Celinni (Case B) also prefers to develop operational risk management plans such as: the use of Just-In-Time, small vendor managed inventories, etc. rather than establishing strategic partnerships with other stakeholders of the supply chain. In fact, he only uses multiple sourcing to supply for its rough diamonds, and he highlights that a continuous price comparison must be made in order to always get the best quality at the lowest price.

Gilles V. (Case C) used operational risk management plans such as: Just-In-Time, Make-To-Order, small vendor-managed inventory. In terms of developing strategic partnerships with its suppliers, Gilles V. used a mixed strategy between single sourcing (for its small regular and standardized collection) and multiple sourcing (for specific orders).

Proposition 3c: Except for highly standardized products, at every level of the supply chain, operational measures (e.g. establishing tender specifications, multiple sourcing, reducing inventories, price comparisons …) are preferred to the development of strategic alliances with other stakeholders in order to manage the supply chain risks.

5.4. SCRM in "buyer-supplier" relationship

As stated here above, De Beers (Case A) does not establish common goals and strategic partnerships with the rough diamond buyers, mainly because the GSSC would be less profitable if the South African conglomerate was doing so. However, Andrew B. acknowledges that there is a complete IT integration of the systems used in Europe and in emerging markets. And he also recognizes that the buyers invited to the Sights must be trusted by De Beers, only certified and authorized diamond traders are allowed to take part in their business transactions. In fact, the company must have confidence in the buyer and wants to be sure that he respects the standards.

Celinni (Case B) also argues that the company does not establish strategic partnerships with other stakeholders of the supply chain. However, he points out the importance of

the supplier selection. In fact, the ability of the supplier to respond to the tender specifications is crucial. The diamond trader adds that confidence is a prerequisite to enter a business relationship. In fact, David S. highlights the need to always work with authorized and certified dealers. The rough diamond buyer also emphasizes that the system used in Europe and in the emerging markets are converging.

As noted here above, Gilles V. (Case C) has a twofold relationship strategy in term of supplier selection: he uses both single and multiple sourcing. Nevertheless, the Belgian jeweler also points out that when buying standardized or specific products, checking the supplier's ability to fulfill the tender specification established by Gilles V. is crucial. In fact, he needs to trust its business partners.

AWDC (Case D) is not a diamond-trading company, but the "public-private" association always advises to buy diamonds from certified dealers and to establish tender specifications when placing an order.

Proposition 4: Two "partnership-typed" strategies are used to reduce supply chain risks without being too resource consuming:

- Standardization of IT systems across the supply chain,

- The supplier selection and control.

5.5. CSR across the global SC

De Beers (Case A), Celinni (Case B) and Gilles V. (Case C) all acknowledge that the implementation of the Kimberley Process as being an unavoidable law to which the entire industry has to comply; has led to an increase of ethical concern in the industry. Furthermore, all of the supply chain stakeholders underlined that this implementation had led to a strong decrease in the use of conflict diamonds in the industry: more than 99% of the diamond traded in the developed countries are guaranteed to be conflict free.

In addition, Celinni and Gilles V. both acknowledge that the scope of the CSR practices in their respective business is limited to the compliance with the Kimberley Process standards and requirements.

AWDC (Case D) also adds an interesting notion: the implementation of the Kimberley Process has led diamond to be the most controlled mineral in the world.

Proposition 5a: The creation of laws encompassing the industry's standard requirements and codes of conduct ensures the actual respect of it across the entire industry.

De Beers (Case A) states that the steps associated to the Kimberley Process do not create time losses. Andrew B. explains that it generates costs, but that this cost is minimized thanks to the governments' involvement in the process.

Celinni (Case B) and Gilles V. (Case C) both recognize that the steps associated to the Kimberley Process do not create costs and time losses at their level of the supply chain.

AWDC (CaseD) – which is a "public-private" association aiming at promoting the diamond trade in Antwerp and is mandated by the governments to perform control of compliance to the Kimberley Process – explains that one of their units: The Diamond Office (DO) is responsible for controlling all imports and exports coming in and out of Antwerp. Experts perform controls on 100% of the goods passing through Antwerp. Controls are also performed in the mining countries to ensure the compliance with the KP minimum requirements. The creation of the AWDC and the DO has relieved the pressure on the industry. In fact, the diamond supply chain actors do not have to perform compliance controls themselves. This leads to two advantages: CSR and legal compliance controls are ensured to be impartial, and this situation leads to cost reduction for the supply chain stakeholders.

Proposition 5b: The creation of 3rd party associations: public, private or "semi-public - semi-private" allows compliance to CSR and laws, and reduces the burden for the diamond traders.

Andrew B. (Case A) explains that CSR is a crucial topic in De Beers business operations, in fact the South African conglomerates develop socio-economic initiatives that go beyond the scope of the Kimberley Process requirements. In addition, because De Beers is a leading MNE in the diamond market, it is very much likely to be criticized if no CSR initiatives are taken.

In comparison, Celinni (Case B) and Gilles V. (Case C) – which both are SMEs – acknowledge that in their business strategies, compliance to the Kimberley Process standards and laws is the only CSR measure taken.

Proposition 5c: A company will develop independent CSR initiatives in its supply chain when two factors are present. First, when the financial and operational resources of the firm are high. Second, when the probability of the firm being criticized increases.

CONCLUSION

My research question aimed to identify the conditions to be implemented to ensure both an ethical and low-risk supply chain when buying diamonds from South Africa to Belgium. To achieve this paperwork, I conducted a three-part development.

During the first part, I presented the economic and geopolitical axes of the diamond trade from South Africa; and developed the measures taken in this country to ensure the ethical nature of the business.

In the second part, elements of the literature were reviewed in term of supply chain risk management and integration of CSR in supply chains. In the third part, the third chapter explained the methodological framework chosen for the establishment of the sample, the data collection and the data analysis. Hence I interviewed actors directly involved in the diamond trade from South Africa to Belgium. The fourth chapter was dedicated to highlight supply chain risk management and CSR strategies implemented in each of the interviewed companies. Finally, the fifth chapter aimed at crossing the findings of the single case analysis in order to establish propositions that allow answering my research question:

- In terms of supply chain risk management:
    - The local presence of local MNEs organized in a “European-American-like” way is likely to reduce the risk of sourcing in emerging countries.
    - Having a leading position on the market allows exercising pressure on the environment in order to reduce the risks faced by a company
    - When large supply is available in the developed markets, most of the supply chain risks linked to the sourcing country is carried out by the local company.
    - SCRM’s concern of the companies increases in parallel with the financial and operational resources of the companies.
    - In general, operational risk management measures are preferred to the development of strategic alliances with other stakeholders.

- Implementing IT systems standardized across the supply chain allows a higher visibility without being too resource consuming. The company's resources are preferably spent in the supplier selection (and control) process.

- In terms of implementing CSR in a supply chain context:
  - The implementation of laws encompassing the industry's standard requirements and codes of conducts is likely to ensure the actual respect of ethics across the entire industry.
  - Creating 3rd party associations: allows a high compliance to CSR and laws, and reduces the burden for the supply chain's actors.
  - CSR initiatives (beyond law requirements) tend to increase when the financial and operational resources of a firm and their probability of being criticized are high.

However, those propositions come from observation and qualitative study of four companies, so the propositions developed here above are only hypothetically correct. In fact, further studies encompassing a larger number of interviews could lead to confirmation, modification or rejection of some of those propositions. Another shortcoming of this master thesis is that it would have been interesting to interview a MNE – a famous brand - that is active in the jewel trade. According to me, this could be the first step for further studies on the subject. Nevertheless, I think that these propositions represent insights for managers and academicians willing to discuss the question of sourcing for diamonds in South Africa. In addition, practically speaking, I think that diamond supply chain actors could usefully base their strategy on those propositions. In fact, existing and new diamond traders could assess their position on the market and their business objectives; and take actions accordingly.

I will conclude by emphasizing that other research, complementary to the one I have undertaken, could usefully be made to further deepen the problem studied. For example, this study remained centered on the situation of sourcing for diamonds in South Africa; perhaps it would be useful to conduct the same type of research on other diamond-producing countries or other industries.

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