

UNIVERSITY OF KWAZULU-NATAL

**THE POTENTIAL ROLE FOR SOCIAL MEDIA TO
IMPROVE AGILITY IN SOUTH AFRICAN FASHION
INDUSTRY SUPPLY CHAINS**

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DECLARATION

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ABSTRACT

With growing competition from international brands and increasing volatility, South African apparel companies have recently made significant efforts to improve their supply chain agility. Companies operating in this industry thus continue to seek ways to improve the flexibility and responsiveness of their supply chains. An insight into new technologies that could assist with these improvements could prove beneficial for South African brands to reach international benchmarks for agility. While academic literature on the subject is increasing but still limited, social media are growing in popularity, internationally, as technological tools that can facilitate visibility and responsiveness of extended supply chains. Studies on the use of social media in South African firms are currently largely focused on their use in marketing, with none identified on their potential or current usage in supply chain management.

The Agile Supply Chain Framework, which was developed by Harrison, Christopher and Van Hoek in 1999, was used to guide the study. The four characteristics of agility: market sensitivity, virtual integration, process integration and network based management, as identified by the framework, were used to analyse if there is potential for social media to increase agility in the South African fashion industry.

Qualitative research methods were used for the study. A case study approach was implemented and data was collected using in-depth interviews involving eight participants involved in the supply chain of one of South Africa's top apparel retailers. Data was analysed using thematic analysis.

The results from the analysis reflected that the uses of social media in the supply chain are minimal, with one tool, Whatsapp surfacing as the most widely used in the Supply Chain and Logistics department. While management were mostly supportive of the introduction of social media in the organisation for supply chain management purposes, concerns were raised about issues such as the lack of security of information and the possibility of losing productivity amongst employees. However, despite these concerns, a substantial number of participants indicated that they would be willing to adopt social media if they were aware of other tools that could benefit their organisation.

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LIST OF ABBREVIATIONS

- 3PL:** Third-party Logistics Provider
- CAD:** Computer-aided Design
- CAM:** Computer-aided Manufacturing
- CRM:** Customer Relationship Management
- ECR:** Efficient Consumer Response
- EDI:** Electronic Data Interchange
- ERP:** Enterprise Resource Planning system
- IT:** Information Technology
- MRP:** Material Requirements Planning
- QR:** Quick Response
- POS:** Point-of-sale
- RFID:** Radio-Frequency Identification Devices
- ROI:** Return-On-Investment
- SCM:** Supply Chain Management
- SKU:** Stock Keeping Unit
- SRM:** Supplier Relationship Management
- VMI:** Vendor Managed Inventory

CHAPTER ONE: INTRODUCTION

1.1. Introduction

The fashion industry is a highly volatile industry characterised by short-lived products and the need for reduced lead times to meet the demands of customers and mitigate the pressures caused by changing styles and seasons (Harrison and van Hoek, 2011: 237). The volatility of the modern fashion global market has seen many international retail brands, such as Zara, enforcing agile supply chain practices. This enables these companies to stock a larger variety of collections and become more responsive to an impulsive market and to reduce the risks of extended supply chains (Bhatia and Asai, 2007: 3). In South Africa, agility has recently been recognised as a vital focal area and some large retail companies are seeking ways to improve in this area (Tukker, 2013: 1).

The study aimed to determine the potential role for social media to improve agility in South African fashion industry supply chains. Using the Agile Supply Chain Framework, it looked to identify current needs and challenges of the industry in terms of reaching an optimum level of agility. These needs were used to determine the existence of opportunities for social media to be adopted in the fashion industry supply chain.

1.2. Background of the study

Harrison and van Hoek (2011: 236) describe agility as a means of using information from the end-customer to organise the operations and logistics of a supply chain. As in any industry, the focus of an agile supply chain in the fashion industry is the target market's demands. The supply chain then works backwards and strives to be responsive and flexible in order to satisfy the needs of these end-customers efficiently (Harrison and van Hoek, 2011: 236). For example, Zara uses agile supply chain practices to coordinate its network of 300 subcontractors located in different geographical areas (Christopher, Lowson and Peck, 2004: 371). Every four to six weeks, it provides its customers with new clothing collections in each of its 600 stores (Chowa, Madub, Kueib, Luc, Lind and Tsengd, 2008: 666).

While the concept of agility is still in its infancy in the South African industry, some of the country's large and competitive retailers have recently implemented fast fashion strategies to keep up in the global competitive arena. For example, through implementing responsive supply chain strategies, The Foschini Group reduced its lead time from concept to outlet by 80 days (Business Day, 2011: 7). However, while improvements have been significant, the responsiveness and agility of South African retailers is still not as well developed as that of international competitors and benchmarkers such as Zara (Bhatia and Asai, 2007: 3).

In the search for new ways of increasing supply chain agility, consideration of social media as effective tools is rapidly growing. However, their adoption in industry is still slow. Gonzalez (2013: 8) compares the current slow adoption of social media in the supply chain to that of the internet in 1996. Although a number of companies remain sceptical of using social media tools to improve their supply chains, according to Howells (2011: 7) many others have gained significant benefits from doing so. Companies such as Microsoft have pioneered the use of social media in their supply chains thereby paving the way for other enterprises to follow suit. Microsoft has done this through Yammer, an internal and external integration tool (Chacos, 2012: 3). Other tools such as Sourcemap (Weaver, 2013: 4), Social Text and the Social Enterprise Resource Planning tool have been used by companies to enhance integration and visibility, which are key areas of agile supply chains. This study therefore aimed to determine the role that social media can play to improve agility in fashion industry supply chains in South Africa.

1.3. Research problem

The global fashion industry has become more competitive with the emergence of globalisation, changing consumer behaviour (Tukker, 2013: 1) and the removal of the Agreement on Textiles and Clothing (ATC) (Morris, Barnes, and Esselaar, 2004: 7). For example, between 2002 and 2006, imports from China into South Africa increased by 480% (Le Roux, 2006: 6). In addition, internationally popular retailers such as Zara, Top Shop and H&M were introduced into the South African market. Their entrance has resulted in closures and also decreased the market share of a significant number of local apparel companies (Witepski, 2014: 1).

With global sourcing also growing, the fashion industry is prone to other risks such as longer lead times (Christopher, Lowson and Peck, 2004: 368) and vulnerability to international uncertainties (Simchi-Levi, Kaminsky and Simchi-Levi, 2008: 1). Improved agility will raise the industry's responsiveness, speed, flexibility, competitiveness and ultimately reduce the costs of uncertainty (Christopher, Lowson and Peck, 2004: 8).

While South African fashion companies have made significant efforts to improve their agility, the gap in performance between the agile supply chains of international companies and those of local companies is still wide. According to Tukker (2013: 4), South African apparel companies mainly focus on reducing costs and this hampers their supply chain responsiveness and flexibility. Research on ways to improve agility is thus an important focus for the industry.

1.4. Research questions

The main research question of the study was, '*Do opportunities exist for social media to increase agility in South African fashion industry supply chains?*' This main question was further broken down into several smaller questions to guide the research process.

The research questions for the study were as follows:

- How sensitive and responsive are current practices of the industry to market changes in demand?
- To what extent are South African fashion industry stakeholders virtually integrated?
- How effective are the current strategies used for process integration?
- How successful are existing strategies at helping focal companies to coordinate strategic relationships with their network of stakeholders?
- Is there a perceived need to improve the agility of South African fashion industry supply chains?
- Are there opportunities for the adoption of social media in South African fashion industry supply chains?

1.5. Research objectives

Research objectives were formulated in order to direct the course of the study. The objectives were:

- To assess the industry's current sensitivity and responsiveness to market changes.
- To identify the level of virtual integration of stakeholders in the South African fashion supply chain.
- To evaluate the extent to which existing technologies, used in the South African fashion industry, facilitate process integration.
- To recognise how efficiently strategic relationships are presently coordinated in the complex fashion supply chain in South Africa.
- To assess whether there is a perceived need to improve agility of South African fashion industry supply chains.
- To deduce from the findings of an empirical study if there are opportunities for the adoption of social media in South African fashion industry supply chains.

1.6. Theoretical framework

The research was based on the Agile Supply Chain Framework which was established by Harrison, Christopher and Van Hoek in 1999 (Christopher, Lowson and Peck, 2004: 371). The framework was developed to give a more detailed understanding of the components of agile supply chains, in order to determine if various supply chains are agile. The Agile Supply Chain Framework has four dimensions: virtual integration, market sensitivity, process integration and network based management (Christopher, Lowson and Peck, 2004: 370). This framework was useful for the study because it allowed the researcher to analyse and measure the extent to which current practices in the South African fashion industry's supply chain facilitate agility in these four areas. It was also effective in revealing if social media have the potential to help supply chains improve agility.

The chosen framework helped the researcher analyse the current needs of the industry and also assisted in identifying if social media would facilitate the various components of an agile supply chain. While the framework allowed the researcher to compare the

characteristics of agile supply chains to those of social media, it did not allow the researcher to measure the financial costs and benefits of using social media to increase agility. The framework allowed the researcher to develop a different role for social media, not just as tools for socialising and marketing but as applications that can be used to increase the agility of the supply chain. The framework was also used to investigate both the benefits and limitations of social media in the supply chain.

1.7. Overview of Methodology

The selection of a suitable methodology for this study was guided by the research objectives. To compile sources for the literature review, the researcher used textbooks and consulted a selection of databases such as EBSCOhost and Google Scholar for journal articles. Due to the exploratory nature of the study, a variety of online sources were also used for this review. The literature review was thus designed to give a general understanding of the agile fashion industry supply chain and also to investigate the social media applications currently used in the value chain. The research followed a case study approach and analysed the supply chain of one major retailer in South Africa. In order to gather primary data, interviews were conducted with a sample of eight participants who were mainly senior managers. Interview guides were used to direct these interviews. Furthermore, the researcher used thematic analysis to analyse the transcripts from the interviews. This method enabled the researcher to determine common themes, categories and codes which all led to the establishment of whether there is potential for social media to be adopted in South African fashion industry supply chains.

1.8. Significance of the study

This study, to the researcher's knowledge, is the first to analyse the potential social media have for improving agility in the South African fashion industry supply chain. The study aimed to analyse the importance of agility to the South African fashion industry, the current gaps present in this area and how social media technology, through facilitating information-sharing, could be implemented to bridge some of these gaps. It further assessed how social media can gather relevant information about the market environment, the role the technology may play in terms of contributing to decision-

making processes and the potential for integrating the supply chain stakeholders and processes. The technology's usability, feasibility and practicality in these areas were analysed. The research thus contributed to a more clear understanding of social media's potential role in the fashion industry supply chain. This aimed to benefit the South African economy and to preserve the local industry through improving the performance of South African fashion brands and helping them gain a competitive advantage compared with international brands competing for the same target markets.

1.9. Justification

While many companies have dismissed the use of social media as only effective in marketing, a thorough study on the topic provides the South African fashion industry with more detailed information with which to make more informed decisions about the value of social media to improving agility in the supply chain. Without this study, South African companies may lag behind supply chain technological developments and become more vulnerable to the negative effects of reduced agility. South African companies may also become vulnerable to competition from more agile international brands such as Zara, which can have consequences to the growth of the economy.

1.10. Ethical considerations

Ethical practices were maintained throughout the entire research process. All information collected for the secondary data was referenced and the authors of these were sufficiently acknowledged (Welman, Kruger and Mitchell, 2005: 182). In addition, ethical clearance was issued before the primary research took place to ensure that the institution that the researcher was working through, the University of KwaZulu-Natal, was satisfied by the manner in which the data for the study was to be collected. All participants were asked to participate on a voluntary basis and did not receive any form of compensation in exchange for their participation. In order to serve as proof of this voluntary participation, an informed consent form was given to each of the participants. This form gave the participants detailed information about the study, why it was being conducted and how the privacy of the information collected would be preserved. Each participant reserved the right to withdraw from the study at any point before the completion of the study (Smith, 1999: 83).

1.11. Limitations of the study

There were some limitations to the study. Due to the novelty of the topic, there was limited secondary data available for the construction of the literature review, which was required to give a background on the study. To reduce the effects of this, the researcher used descriptive and exploratory research to form the literature review. In addition, the primary research sampling was limited to companies present in the KwaZulu-Natal area. In order to address this limitation, a retail company with branches in other parts of the country was used for this study, as its policies would mostly be consistent throughout the country.

1.12. Chapter Overview

Chapter One: Introduction

Chapter One is an introduction to the dissertation. It provides insight into the objectives and research questions guiding the study. It further gives the reader an understanding of the research problem that gave rise to the need for this study to be conducted. In addition, through Chapter One, the researcher gave an overview of the methodology used to collect data used for the study, the ethical considerations that were observed throughout the study and the overall limitations of the study.

Chapter Two and Three: Literature Review

The literature review is divided into two chapters, Chapter Two and Chapter Three. Chapter Two gives an overview of the fashion industry, the characteristics of fashion products and the purchasing behaviours of consumers of this industry. This information leads to a review of literature on the strategies used to serve the volatile industry. A discussion of the Agile Supply Chain Framework is given with each of the four constructs of the framework discussed in detail.

Chapter Three discusses social media in relation to the supply chain. It looks at the characteristics of social media and the qualities of social media that have drawn attention to their potential for use in the supply chain. The chapter further looks at various social media tools that are currently present in the supply chain and analyses this information in conjunction with literature of supply chain management and

information-sharing amongst stakeholders in the supply chain. The tools are further categorised according to their potential contribution to the agile supply chain.

Chapter Four: Research Methodology

Chapter Four looks at the methods that were used to gather information for the study. Characteristics of the target population, sampling techniques and data collection instruments are discussed in this chapter. Information on how the data was analysed and how reliability and validity were maintained is also discussed in this chapter. It gives more detail of the ethical considerations and limitations that were briefly discussed in Chapter One.

Chapter Five: Presentation of findings

Chapter Five presents the findings that were collected in the empirical research. These findings are sorted according to themes and further sorted into categories and codes.

Chapter Six: Discussion

Chapter Six is a discussion of the findings of both the literature review and the empirical research. This chapter seeks to show how information collected reflects upon the objectives of the study.

Chapter Eight: Conclusion and Recommendations

Chapter Eight gives a conclusion of the entire study and presents a model for the potential adoption of social media in the supply chain and recommendations based on the findings of the research. Recommendations for future studies are also made in this chapter.

CHAPTER TWO: LITERATURE REVIEW OF THE FASHION INDUSTRY SUPPLY CHAIN

2.1. Introduction

The fashion industry, with both clothing and textile divisions, is an extremely profitable sector in the global economy. From clothing and accessories to shoes, the industry's products are largely becoming a vital reflection of their consumers' identities (Dhurup, 2014: 169). Not only do these products play an essential role in the lives of their consumers but they have also made a contribution to the historical development of the global economy (Kim, 2013: 214). With both formal and informal stakeholders, consisting mainly of small to medium-sized businesses, in areas such as KwaZulu-Natal, the Western Cape and Gauteng, the clothing and textile industry in South Africa is viewed as major source of income, particularly for women, who make up a larger percentage of the employees (Vlok, 2006: 227). Due to the social and economic value of the clothing and textile trade, the South African fashion industry has invested US\$900 million (valued, in 2016, at approximately R14, 3 billion) since 1994 on improving its efficiency in order to make its operations more competitive on the global platform (South Africa.info, 2014: 7). While much has been invested in the growth of the local industry, studies (Ramdass, 2007: 2; Fernandez-Stark, Frederick and Gereffi, 2011: 6; Mihm, 2010: 55) show that it continues to face challenges which have had great effects on its sustainability and expansion. Furthermore, Vlok (2006: 228) states that although South Africa has a considerable international market for its textile and clothing products, it relies mainly on domestic sales, with 70% of this market claimed by five of the industry's top retailers.

According to Wolmarans (2011: 1), the restructuring of textile and clothing industries, on the global platform, has resulted in numerous challenges, mainly affecting industries situated in developing countries. The characteristics of the industry and its products, as discussed by Christopher, Lawson and Peck (2004: 367), Bhardwaj and Fairhurst (2010: 165) and Gustafson, von Schmiesing-Korff and Lit Ng (2005: 23), along with the varying roles of multiple stakeholders (Fernandez-Stark, Frederick and Gereffi, 2011: 11; Apu, 2012: 3), contribute greatly to the difficulties it faces. These make it

important for the industry to focus on effectively managing its supply chain network, in order to decrease the effects of these challenges.

The first chapter of this study provided a detailed overview of the focus of the dissertation. The following two chapters comprise comprehensive literature reviews which will, together, provide a useful background to the study. This chapter of the literature review gives an impression of the fashion industry, with references to both global and South African perspectives. It also gives the reader a more in-depth understanding of the characteristics of fashion products and the challenges faced by the industry, which have all contributed to the industry's movement towards implementing more agile strategies. The chapter further discusses these agile supply chain practices and the Agile Supply Chain Framework, which was used to guide this study.

2.2. Fashion Industry Supply Chain Management

Studies by Bhardwaj and Fairhurst (2010: 166), Fernandez-Stark, Frederick and Gereffi (2011: 9) along with Bruce and Daly (2006: 329) discuss external market changes, such as increasing consumer demand for customised and trendy styles, along with demand volatility. Such changes have contributed largely to the fashion industry focusing on the management of logistics networks, in order to compete in the almost saturated international market. In addition, the complications of managing several outlets that some retailers face, as discussed by Bhatia and Asai (2007: 3), have increased the need for firms to find strategies that are both proactive and useful for the efficient and effective running of their entire value systems. Zara, for example, has approximately 600 stores in total (Chowa *et al.*, 2008: 666). The retailer analyses data from each of its various outlets, in order to anticipate and forecast trends that customers will most likely purchase (Bhatia and Asai, 2007: 3). This data is then fed into a single network of members of Zara's supply chain which, according to Christopher, Lawson and Peck (2004: 371), includes 300 geographically dispersed subcontractors. The management of the supply chain or logistics network has thus emerged, over the years, as an area that many companies have ascertained to be vital for their survival in the ever-changing modern global market (Zygiaris, 2000: 2; Simchi-Levi, Kaminsky and Simchi-Levi, 2008: 1).

Supply chain management (SCM) is defined, by the Global Supply Chain Forum (GSCF) (cited in Lambert and Cooper, 2000: 65), as *'the integration of key business processes from end user through original suppliers, that provides products, services, and information that add value for customers and other stakeholders'*. Simchi-Levi, Kaminsky and Simchi-Levi (2008: 1) further expand on this definition, by describing SCM as *'a set of approaches utilised to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimise system-wide costs while satisfying service level requirements'*. It can be seen, through these definitions, that these authors agree that supply chains are managed in order to increase the value and quality of service delivery to stakeholders and to reduce the costs incurred by all relevant parties involved in the supply chain. The definition by Simchi-Levi, Kaminsky and Simchi-Levi (2008: 1) further explains that these objectives of supply chains can only be achieved if goods and services are made available when and where they are needed and in the correct quantities. The definitions also show that integration is an important element for supply chains to be efficient and effective. Both these definitions are therefore, useful for this study as they support the notion that companies can no longer successfully exist or operate in isolation in the modern global environment, and that the efficient management and integration of the logistics network is vital to achieve a competitive advantage.

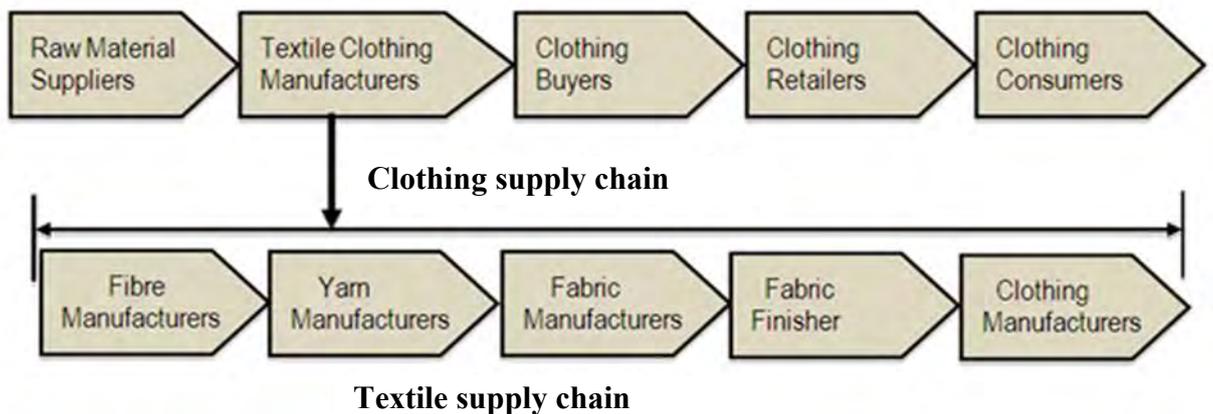
Holmberg and Öhnfeldt (2010: 2) describe fashion as having the same shape as a pyramid. High fashion, also known as haute couture, is at the top of the pyramid. It consists of exclusive, highly-customised, expensive, high-end pieces from world-renown designers (Easey, 2009: 21). The next segment is ready-to-wear (*prêt-à-porter*) fashion, which is not as customised as haute couture but is still expensive and found in exclusive designer stores, which are not as easily accessible to the masses (Holmberg and Öhnfeldt, 2010: 2). The third level is occupied by what Dhurup (2014: 169) refers to as *'challenger brands'*. While not bearing a hefty price tag, as the ready-to-wear fashion and haute couture pieces, these brands are described as highly fashionable. At the last level of the pyramid are mainstream mass produced and widely distributed products from retailers (Easey, 2009: 22). These are significantly more affordable, while still considered stylish and fashionable alternatives to the more expensive brands (Holmberg and Öhnfeldt, 2010: 2).

The fashion yearly calendar is followed by many partners in the fashion industry. The cycle time, for ranges to be sold in retail outlets, thus begins with designs of products working on four-season product calendars. The preview of new products to be sold in retail stores takes place approximately six months before the products are available for customers to purchase them (Smith, 2014: 6). During this period, various stakeholders of the fashion industry supply chain are involved in different areas such as the reviewing of designs; to determine if they meet the characteristics and tastes and demands of the market, the negotiation of supplies and contracts and the production and transportation of the final product, in varying sizes, to outlets (Smith, 2014: 6).

The typical supply chain includes raw material suppliers, manufacturers, warehouses, distributors, retailers and final consumers (Naude and Badenhorst-Weiss, 2011: 73). Raw materials are purchased from their sources and used by suppliers as inputs to manufacture components and/or finished products (Park, 2013: 1). These finished products are then transported to warehouses or distribution centres from where they are distributed to retailers. It is usually from these retail outlets that the final consumers purchase the finished products (Simchi-Levi, Kaminsky and Simchi-Levi, 2008: 1).

The fashion industry, while having similar characteristics to the typical supply chain, has a number of differences, which increase its complexity. Apu (2012: 1) describes the industry's supply chain as being separated into two, that of the textile industry and the other of the clothing or apparel industry. This is illustrated in **Figure 2.1**. Textile manufacturers, using inputs such as cotton, oil, wool and silk (Fernandez-Stark, Frederick and Gereffi, 2011: 11), '*process fibres into yarns, yarns into grey fabrics to finished fabrics*' (Apu, 2012: 1).

Figure 2.1: Clothing and Textile Supply Chains



Source: (Apu, 2012: 3)

Fernandez-Stark, Frederick and Gereffi (2011: 11) identify the processes used in the textile manufacturing, as spinning, weaving, knitting and finishing. The clothing or apparel industry, which according to these authors may have both local and international subcontractors, then uses the outputs of the textile industry, as inputs to manufacture (cutting, designing, sewing, ironing) the finished products. These products are then delivered to retail outlets (department stores, speciality stores, discount chains, factory outlets) and sold to the final consumer (Fernandez-Stark, Frederick and Gereffi, 2011: 11). Lam and Postle (2006: 270) add that the fashion industry differs from other industries such as the automobile and appliance industries, due to the role and level of influence of stakeholders. According to the authors the manufacturers in the fashion trade do not have much bargaining power and are largely dominated by the stakeholders upstream, such as retailers.

Before production can take place, each of the manufacturers, both in the textile and clothing industries, need to know, months in advance, what the required production levels are for the manufacturing of the fashion products. This information is also necessary for these manufacturers to determine their ability to achieve these production levels and for each stakeholder to commit to holding specific levels of inventory (Simchi-Levi, Kaminsky and Simchi-Levi, 2008: 65). These decisions involve a lot of risks and financial costs to the stakeholders. Factors such as fluctuations in demand, changes in tastes, unforeseen delays and bottlenecks (Queensland Government, 2015: 3) increase the risks supply chains can incur and complicate the process of meeting

demands on time, at the right quantity and place, as stipulated by the definition of SCM. Buyers thus play a crucial and strategic role in the supply chain, as their decisions involving which trends and styles to purchase, from which manufacturers and in what quantities, affect all stakeholders in the fashion supply chain (Bruce and Daly, 2006: 331). In order to successfully meet the changes in tastes and demand from customers of the fashion industry, the supply chain needs to be strategically managed. This is done so as to reduce the total cycle time, possible risks and associated costs to stakeholders and the resulting variability within the supply chain (Smith, 2014: 15).

2.3. Characteristics of modern fashion industry supply chains

The characteristics of fashion industry products have a major effect on how the industry's supply chain is designed and managed. Lam and Postle (2006: 271) describe products as being either functional or innovative. Functional products, such as those that can be purchased from grocery stores, have a relatively stable demand and are fairly predictable. Lam and Postle (2006: 271) distinguish these from innovative products, such as those of the fashion industry, which are usually associated with unpredictable demand. This is due to changes in styles and constant introductions of new trends and products. Christopher, Lowson and Peck, (2004: 367) have similar views as they describe the demand for fashion products as being highly complex and at times, '*chaotic*'. Research by Bhardwaj and Fairhurst (2010: 165), thus defines fashion as '*temporary cyclical phenomena adopted by consumers for a particular time*'. Similarly, Gustafson, von Schmiesing-Korff and Lit Ng (2005: 23) also define the word, '*fashion*' as one that is widely used to describe any item that has a short lifecycle. Failure to efficiently and effectively manage this seemingly '*chaotic*' supply chain, can lead to under-stocking of best-sellers or over-stocking of slow-moving styles. These both increase total supply chain costs and reduce profitability and the quality of customer service delivered (Christopher, Lowson and Peck, 2004: 368).

Research by Christopher, Lowson and Peck (2004: 367) gives the five characteristics of the modern fashion market: short product life-cycles, high volatility, low predictability, high impulse purchasing and competitiveness. Similar themes, consistent with these characteristics, have been identified from other studies based on the fashion industry (Gustafson, von Schmiesing-Korff and Lit Ng, 2005; Lam and Postle, 2006; Bhardwaj

and Fairhurst, 2010; Mihm, 2010; Hansson, 2011). These characteristics will be discussed in more detail in the following sections.

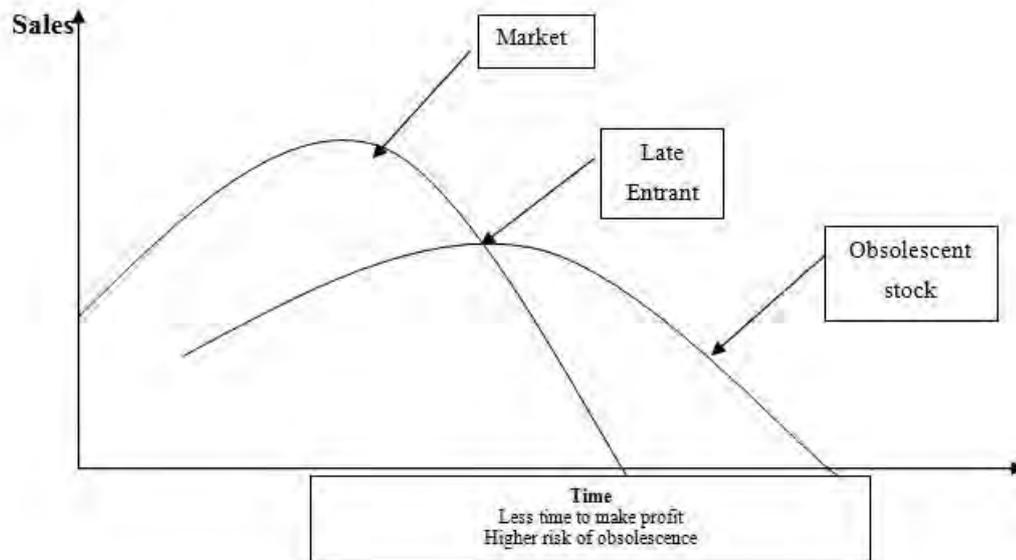
2.3.1. Short product life-cycles

Consistent with Gustafson, von Schmiesing-Korff and Lit Ng's (2005: 23) definition of innovative products, Emerald Group (2005: 28) identifies short product life-cycles as a distinguishing characteristic of fashion markets. The length of the life-cycle is likely to last a season or even a few weeks, as products are designed to meet the moods and influences of customers during a specific period. Mihm (2010: 56) further elaborates that unless consumers are investing in designer pieces, clothing items are generally purchased to be used for not more than two seasons. Seasons are defined by Bhardwaj and Fairhurst (2010: 166) as the rate with which all products in a retail shop are replaced with new ranges. Retailers, such as Zara and H&M, popularly stock smaller quantities of products and according to Bianchi and Birtwistle (2012: 1), enforce the concept of '*Here Today, Gone Tomorrow*'. Mihm (2010: 55) recognises this strategy as a method for these companies to increase their profits. These authors motivate that this strategy generates higher profits for these retailers because it encourages consumers to visit their stores often, in order to purchase trends before they are out of stock. Hansson (2011: 19) adds that the short product lifecycle strategy also enables firms, such as Zara, to keep the possible risks of overstocking low. These examples show that the product life-cycles of fashion items are not only affected by the purchasing behaviours of consumers but also the strategies some retailers implement in order to be more profitable.

According to Bhardwaj and Fairhurst (2010: 167), from the 1980s, the lifecycles of fashion products in the industry have typically taken place in four stages. These stages include the introduction stage, in which fashion lead-users are the first to adopt the various styles and trends. In the growth stage, trends and styles become more publicly acknowledged and accepted. Entering the market during its introduction and growth stages can have a positive effect on the percentage of sales a company will receive on that particular style or trend (Christopher, Lowson and Peck, 2004: 368). The maturation stage is one in which the product becomes more widely used and distributed to the masses. This is followed by the decline stage, where fashion trends and styles become obsolete (Bhardwaj and Fairhurst, 2010: 167). Entering the market during its

maturation and decline stages means that stakeholders have less time to make a profit before the lifecycle ends. This may result in obsolete stock and a loss of profits, due to the need for inevitable mark-downs (Christopher, Lowson and Peck, 2004: 368). This is summarised in **Figure 2.2**.

Figure 2.2: Shorter lifecycles making timing crucial



Source: (Christopher, Lowson and Peck, 2004: 368)

The short lifecycles of fashion products have a great impact on how the supply chain for the industry is shaped and designed. Short product lifecycles mean that retailers and their supply chain partners can no longer focus on only achieving low cost operations, but need to also focus on becoming more responsive to providing customers with new trends and styles and extending the range of products offered at any given time (Bhardwaj and Fairhurst, 2010: 167). In order to achieve this, Tyler, Heeley, and Bhamra (2006: 316) note that companies had to add mid-seasons to their fashion calendars, so as to continuously supply customers with new and innovative styles and trends. This pressure to add mid-seasons has seen some retailers adding three to five seasons within the normal fashion calendar seasons. These changes have had an effect on the supply chain, as companies are required to meet the demands of customers in a shorter time frame (Bruce and Daly, 2006: 329).

As was earlier noted, the fashion industry follows a calendar, which affects the lifecycles of its products. This fashion calendar is focused around events such as fashion and trade shows, which became open to the public in 1999 and exposed consumers to the latest fashions (Bhardwaj and Fairhurst, 2010: 168). Johannesburg, in South Africa, is an emerging fashion hub and is recognised as the fashion capital of Africa. Efforts by the South African government, through the Johannesburg Economic Development Unit, have increased the popularity of this emerging hub, with the growth of influential fashion events on the rise from only two in 2002 to nine in 2008 (Grail Research, 2009: 13). Although the exposure of these South African events to the local masses is relatively small, public interest is rising. The growing population of fashion conscious South African consumers is influenced by these fashion events. Skov (2006: 774) reveals that internationally, what is seen during fashion events and trade fairs by these fashion influencers is translated into apparel that will be worn by consumers and sold in retail stores within months. South African fashion influencers are also exposed to international fashion weeks, such as Paris Fashion Week and Milan Fashion Week (Grail Research, 2009: 13). These events all have an impact on the lifecycles of products internationally.

2.3.2. High volatility

The complexity and volatility of the demand for fashion products is affected by a number of forces. Fashion shows and hubs, which were discussed in the previous section, are also contributors to the complexity and volatility of demand. Popular musicians, actors, films and sports stars, along with changes in the weather (Čiarnienė and Vienažindienė, 2014: 1012), and other trends followed by consumers, such as environmental awareness, are all also influential factors in their purchasing decisions (Joung, 2013: 689). Barnes and Lea-Greenwood (2010: 761) acknowledge the increasing popularity, availability and reliability of media and magazines, as communicators of fashionable trends. The influence of these sources has contributed to the growth in fashion conscious consumers. Barnes and Lea-Greenwood (2010: 761) note that consumers actively search for fashion and style ideas from the media then proceed to search in clothing outlets for the individual clothing items seen in these sources. For example, consumers in South Africa can search for style inspiration from television shows and channels dedicated to fashion and styling, along with weekly and

monthly glossy magazines: such as Grazia and Elle. This then increases the volatility and low predictability of demand.

2.3.3. Low predictability

Due to external factors that cause the market to be highly volatile, the demand for products cannot be forecasted in its entirety (Čiarnienė and Vienažindienė, 2014: 1012). It is therefore difficult to accurately predict how trends will be received by different markets. Bhardwaj and Fairhurst (2010: 165) reiterate that since the 1980s, when the fashion tastes of consumers began to develop beyond basic apparel and to vary from consumer-to-consumer, the level of accuracy of forecasts for fashion product demands changed. Liu, Ren, Choi, Hui, and Ng (2013: 1) further explain that the inaccuracy of demand predictions is also a result of climate changes, the state of politics, along with other variables such as the marketing approaches chosen by a fashion retailer. Similarly, Čiarnienė and Vienažindienė (2014: 1013) further add that there are multiple trends and styles, at any given point in time, with none completely dominating the market. Liu *et al.* (2013: 1) explain that most of these products have very little historical information regarding past sales. This further increases the complexity of demand forecasting. According to Christopher, Lawson and Peck (2004: 367), while much research was done on how to improve the forecasts of products in the fashion industry, it was discovered that the proposed tools were unreliable. Bhardwaj and Fairhurst (2010: 165) argue that in order to reduce the effects of inaccurate forecasts, companies have begun to compete on a time basis, with speed-to-market as a major element for ensuring that they quickly supply the trends seen at fashion shows and events in order to maintain profitability and decrease the costs of forecast errors. While the study by Liu *et al.* (2013) is a recent exploration of the benefits and drawbacks of forecasting tools used by fashion retailers, Bhardwaj and Fairhurst (2010: 165) argue that the use of real-time demand is still a more reliable method of determining demand for products. This provides further pressure for a competitive supply chain design.

2.3.4. High impulse purchasing

Christopher, Lawson and Peck (2004: 367) describe the behaviours of consumers of fashion products as highly impulsive. This impulsiveness of consumers has inspired a number of studies in a variety of fields such as management and psychology (Dhurup, 2014: 169). Understanding the impulsive behaviours of consumers not only allows companies to more accurately determine demand, but also allows marketers to become more aware of how to stimulate and increase it. Research by Mariri and Chipunza (2009: 102) defines impulsive buying as '*a more arousing, unintended, less deliberate and more irresistible buying behaviour, as compared to planned buying behaviour*'. Holmberg and Öhnfeldt (2010: 16) explain that impulsive buying can be categorised into three groups:

- **Completely unplanned-** This occurs when consumers are only stimulated to purchase products when they see them at the point of purchase, reducing or completely eliminating the planning time frame.
- **Partially unplanned** – In this category, consumers enter a shop with the intention to purchase products but have not decided which products to purchase.
- **Unplanned substitution** – Consumers enter a store planning to purchase particular items and then make a decision to instead acquire different goods.

Iqbal, Akhtar and Lodhi (2014: 33) elaborate that impulse buying involves a level of spontaneity on the consumer's part and is largely not planned. To reflect the extent of this impulsive behaviour, in South Africa, Dhurup (2014: 168) reports that 11 million consumers, in the country, have clothing store credit accounts. Mafini, Dhurup and Mandhlazi (2014: 1) further identify Generation Y consumers (customers born between 1980 and 1994) as the most fashion conscious and impulsive of all generational cohorts, as the group uses at least two-thirds of its earnings on purchasing fashion products.

Bhardwaj and Fairhurst (2010: 166) explain that not only are fashion product consumers impulsive, but they are also driven by '*instant gratification*'. In addition, Mariri and Chipunza (2009: 102) describe this longing for instant gratification as motivated by irrational emotion. Dhurup (2014: 169) also notes that shopping for clothing has become more popularised as an activity to partake in for relaxation and for social purposes. Holmberg and Öhnfeldt (2010: 16) emphasise that shopping for

clothing is viewed, mainly by female consumers, as an activity for leisure. Similarly, Dhurup (2014: 169) also notes that the activity has become more popularised as one to partake in for relaxation and social purposes. Consumers may associate purchasing items with feelings of ‘joy, love, fear and hope’ (Schiffman and Kanuk cited in Mariri and Chipunza, 2009: 103). These associations may result in consumers skipping certain levels of the decision-making process, such as searching and evaluating, before making a purchase. An article by Daily Mail Reporter (2011: 1) titled, ‘*Feeling sad? Go shopping because it really does make you happier, say psychologists*’, describes shopping for clothing as a form of therapy, popularly referred to as ‘*retail therapy*’. This example reveals how influential media may also encourage the association of retail shopping with positive emotions. The article by Daily Mail Reporter (2011: 8) further encourages this association by substantiating its claims with statistics from psychologists, whom consumers may consider credible sources.

Mariri and Chipunza (2009: 103) also acknowledge external stimuli, controlled by retailers, as possible promoters of consumer impulsiveness. According to these authors unexpected mark-downs or sales promotions may further contribute to the impulsive purchasing decisions of consumers. Other factors such as the cleanliness of a store, music playing in stores, attractive displays of clothes, on racks and mannequins (Mariri and Chipunza, 2009: 103), along with helpful and convincing store assistants (Iqbal, Akhtar and Lodhi, 2014: 33) may also play a key role in encouraging the impulsiveness of consumers. Mattila and Wirtz (2008: 563) state that the presence of a large number of stimulants can temporarily eliminate self-discipline and increase the possibility of impulsive consumption behaviour, even when consumers have placed personal restrictions on their purchasing, for example through budgets or shopping lists. While impulsiveness may vary from consumer-to-consumer, Mattila and Wirtz (2008: 564) suggest that brand loyal consumers or those more familiar with a particular store, are likely to be more impulsive, compared to infrequent or first-time consumers, who may be more guarded in unfamiliar environments.

2.3.5. Highly competitive

The international fashion industry has become more competitive with the emergence of globalisation (Bhardwaj and Fairhurst, 2010: 167) and the removal of some protective trade policies (Fernandez-Stark, Frederick and Gereffi, 2011: 6; Mihm, 2010: 55).

According to Vlok (2006: 227), South Africa became more exposed to international competition when it came out of isolation and became a member of the World Trade Organisation (WTO) in 1994, after the country's emergence from Apartheid. Before this period, the country's clothing and textile industry was built solely to serve the local market and this prevented the industry from meeting global standards of efficiency and quality (Vlok, 2006: 227). The Agreement on Textiles and Clothing (ATC), which was implemented by the WTO was, in the past, responsible for regulating the global movement and distribution of apparel products (Fernandez-Stark, Frederick and Gereffi, 2011: 6; Mihm, 2010: 55). This trade policy thus protected the 145 individual member countries of WTO and their local textile and apparel companies. However, Fernandez-Stark, Frederick and Gereffi (2011: 6) and Mihm (2010: 55) both explain that the removal of this protective policy in 2005 boosted international global sourcing and competition in the industry.

Countries such as China have benefited greatly from the removal of the ATC and the development of the competitive global market. Fernandez-Stark, Frederick and Gereffi (2011: 9) add that China's global market share grew exponentially from 26% in 2005 to 33% in 2008. Unfortunately, this growth has occurred at the expense of other countries such as South Africa (Vlok, 2006: 228). Vlok (2006: 228) states that while South Africa and China share a trading relationship, the former has suffered a great deal due to the cheaper imports brought into the country. Le Roux (2006: 6) discusses a 480% increase in imports from China into South Africa, which occurred between 2002 and 2006. Between 2003 and 2006, this growth in competition from cheaper imports resulted in 55 500 jobs lost in South Africa's textile and clothing industry (Vlok, 2006: 228).

Bruce and Daly (2006: 329) also note that global sourcing introduced another kind of competition based on price. Global sourcing has been popularised by the cost-savings which result from outsourcing to developing countries. These countries have become sourcing locations of choice because of their less rigid regulations and low minimum wages (Bruce and Daly, 2006: 329). Mihm (2010: 55) explains that sourcing internationally not only benefits companies, but the cost-savings are extended to customers, who can now purchase affordable clothing and easily access trendier styles. New agreements such as the CAFTA-DR Tariff Preference Levels (TPL), the African Growth and Opportunity Act (AGOA) and the Generalised System of Preferences

(GSP) scheme, which permits duty free imports into the EU from under-developed countries, were also responsible for increasing competition from developing countries such as Lesotho and Bangladesh (Fernandez-Stark, Frederick and Gereffi, 2011: 9). These agreements also made these geographical areas attractive locations to outsource to (Fernandez-Stark, Frederick and Gereffi, 2011: 9). This further extended and increased the complexity of logistics networks. However, while China is not considered a developing nation, the country's cheap manufacturing industry has provided significant competition for manufacturing in developing countries. Paton and Bissek (cited in Ramdass, 2007: 3) note that China may in due course be the producer of 70% of the world's textile and clothing products.

2.4. Fashion industry supply chain best practices: Fast Fashion concepts

The characteristics of fashion products that were earlier identified emphasise the need for speed and responsiveness in the fashion industry supply chain. '*Fast fashion*' has thus emerged as a supply chain strategy designed specifically to serve the volatile fashion industry. This strategy was initially popularised by retailers such as H&M and Zara (Gabrielli, Baghi and Codeluppi, 2013: 206). Fast fashion is defined by Barnes and Lea-Greenwood (2010: 761) as a model used by fashion retailers to coordinate business processes in order to increase speed-to-market. Through continuously purchasing and selling new ranges of products within a season, companies functioning on this model are able to constantly provide their customers with up-to-date fashion items for the duration of each season. The concept of fast fashion follows the desire retailers have to be more flexible and efficient in their supply chain operations in order to rapidly respond to market changes and demands (Hansson, 2011: 8). Fast fashion, sometimes referred to as '*quick fashion*', is therefore a means for supply chains in the industry to decrease the time between the exhibitions of new trends and styles on the runways and the availability of these designs to consumers in retail outlets (Bhardwaj and Fairhurst, 2010: 165).

According to Barnes and Lea-Greenwood (2010: 761), fashion industry supply chains have moved away from a '*push*' strategy or '*supplier-driven approach*', (Gabrielli, Baghi and Codeluppi, 2013: 207) to a '*pull*' strategy also referred to as a '*consumer-driven approach*'. This is because the modern style-savvy and self-assured consumer

dictates the styles and trends retailers should stock (Barnes and Lea-Greenwood, 2010: 761). Gabrielli, Baghi and Codeluppi (2013: 207) further elaborate that an efficient fast fashion model not only enables the continuous introduction of new trends and styles as demanded by the market, but it also ensures that these are presented and offered to consumers at affordable prices. These authors explain that due to the low prices of fast fashion items, consumers are able to purchase more products. Furthermore, consumers may also feel less fearful of making errors in their selection of items to purchase, as their decisions involve a '*small economic and psychological investment*' (Gabrielli, Baghi and Codeluppi, 2013: 207).

While in the past the use of fast fashion was a way for European companies to establish a competitive advantage based on speed-to-market and responsiveness, Moeng (2011: 2) notes that this strategy is now globally recognised as a necessity for fashion retailer supply chains to satisfy their markets and maintain competitiveness. Some fashion retailers have adopted fast fashion both locally and internationally. Zara, Mango and Top Shop are some international retailers, now present in South Africa, that have implemented such strategies in their supply chains. These retailers have reaped the benefits of providing interpretations of designs seen in fashion shows in their outlets within three to five weeks (Bhardwaj and Fairhurst, 2010: 168). In addition, some of South Africa's large and competitive retailers have made use of these strategies to keep up in the global competitive arena. For example, The Foschini Group, in 2011, attributed its 19.5 % increase in sales and 15.5 % increase in turnover to its implementation of fast fashion strategies (Business Day, 2011: 4). Before implementing new systems in its supply chain, the company took 180 days to transform concepts into clothing items to be sold in retail stores. However, it was reported that after the restructuring of its supply chain, The Foschini Group reduced the time from concept to outlet to 100 days (Business Day, 2011: 7). At the time that these changes were reported, the South African retailer's improvements were still not as competitive as the three to five weeks that international companies took, during that period. However, these were still significant improvements on the strategies that were used in the past.

Fashion industry stakeholders have continued to implement fast fashion strategies such as Quick response and Agility (Barnes and Lea-Greenwood, 2010: 762), in order to be able to meet the demands of the volatile market and to increase their competitive

advantage in the industry in a shorter time period. The strategies ensure that supply chains are able to increase efficiency throughout the value chain. This is done through providing regular production runs and ensuring that transportation and logistics structures are supportive of these time-based strategies (Birtwistle, Siddiqui and Fiorito, 2003: 120).

2.4.1. Quick response

According to Birtwistle, Siddiqui and Fiorito (2003: 118), Quick Response (QR) is a concept that was devised in the 1980s by American retailers in the fashion industry and their suppliers, in response to competition from foreign companies. The development of the idea was a result of Kurt Salmon Associates (KSA) discovering that the industry was losing approximately US\$ 25 billion each year as a result of inefficient supply chain practices. Birtwistle, Siddiqui and Fiorito (2003: 118) identify, in their study, that the losses were largely due to increases in inventory, extended lead times and inaccurate forecasts which led to stock-outs or excess stock and the associated markdowns. Fernie and Azuma (2004: 795) further elaborate the extent of these inefficiencies, using findings from the research by KSA. According to this study, it was found, that the entire lead time for products in the industry was 66 weeks. Of this time period, a mere 11 weeks were used for value-adding processes. The remaining weeks were dedicated to non-value adding activities. Harrison and van Hoek (2011: 217) further note that for 55 weeks products were sitting in the pipeline, as inventory. The inefficiencies were mainly a result of a lack of integration of stakeholders.

Harrison and van Hoek (2011: 217) define QR as *‘an approach to meeting customer demand by supplying the right quantity, variety and quality at the right time, to the right place, at the right price’*. This definition is similar to the one earlier quoted from Simchi-Levi, Kaminsky and Simchi-Levi (2008: 1), however, it does not give a clear view of what differentiates QR from other supply chain strategies. McMichael, Mackay and Altman (cited in Birtwistle, Siddiqui and Fiorito, 2003: 118) give a different and more detailed definition of QR, also mentioning meeting the demands of consumers as the main focus of the strategy while also including, in the definition, *‘cooperative planning by supply chain partners’* and the use of *‘IT and flexible manufacturing to eliminate inefficiencies from the entire supply chain’*. This definition encompasses the initial objective of QR, as developed by KSA, which was to remove the inefficiencies

of the fashion industry supply chain. Fernie and Azuma (2004: 796) further mention that QR presents a win-win situation, in which partners across the supply chain are able to share both the risks and benefits of supply chain activities.

The definition of QR provided by McMichael, Mackay and Altman (cited in Birtwistle, Siddiqui and Fiorito, 2003: 118) identifies the role of technologies in the removal of non-value adding activities. Harrison and van Hoek (2011: 217) further discuss the involvement of information technology in the integration of supply chain partners. In addition, Birtwistle, Siddiqui and Fiorito (2003: 118) also note that through implementation of collaborative technologies, supply chain partners are able to share confidential information on forecasts, order schedules, deliveries and sales, giving specific information on SKUs, for example colours and styles of items sold. Harrison and van Hoek (2011: 217) elaborate that information about products is collected at the point of sale (POS) and then fed into the system through Electronic Data Interchange (EDI), using common bar-codes. Through the information provided via EDI, suppliers are able to determine the performance of products and the replenishment levels of inventory. Tools such as Computer-aided design (CAD) are used by designers to alter or draw designs, which are sent directly to suppliers online. These CAD systems are integrated with Computer-aided Manufacturing (CAM) systems, which increase the flexibility of manufacturing facilities and the speed-to-market (Birtwistle, Siddiqui and Fiorito, 2003: 121).

2.4.2. Agile Supply chain

Fachmann and Hunter (no date: 199) describe a modern-day consumer with high expectations. According to this description, these consumers prefer to purchase from companies that are able to provide them with goods and services of higher quality, at lower prices. Heizer and Render (2011: 189) and Loebbecke, Palmer and Huyskens (2006: 3) note that changes in the economy can affect the disposable income of consumers. While some economic situations may decrease the spending power of consumers, making more consumers price sensitive, Loebbecke, Palmer and Huyskens (2006: 3) contend that consumers faced with these financial constraints will still demand high quality products but at lower prices, delivered in the timeliest manner in order to satisfy their demands. Christopher, Lowson and Peck (2004: 367) identify three

types of lead times that fashion industry supply chains need to be cognisant of in order to serve their markets in a timely fashion. These are:

- **Time to market:** This is the time it takes for a company to recognise that there is a gap in the market that represents an opportunity, and for the company to produce and distribute a product or service that serves this gap.
- **Time-to-serve:** This is the time it takes to identify and capture orders from customers and deliver them to the final point-of-purchase.
- **Time-to-react:** This is the rate of responsiveness to changes in demand. It measures the time it takes for companies to identify a change and to respond to it, through adjusting the levels of production or outputs.

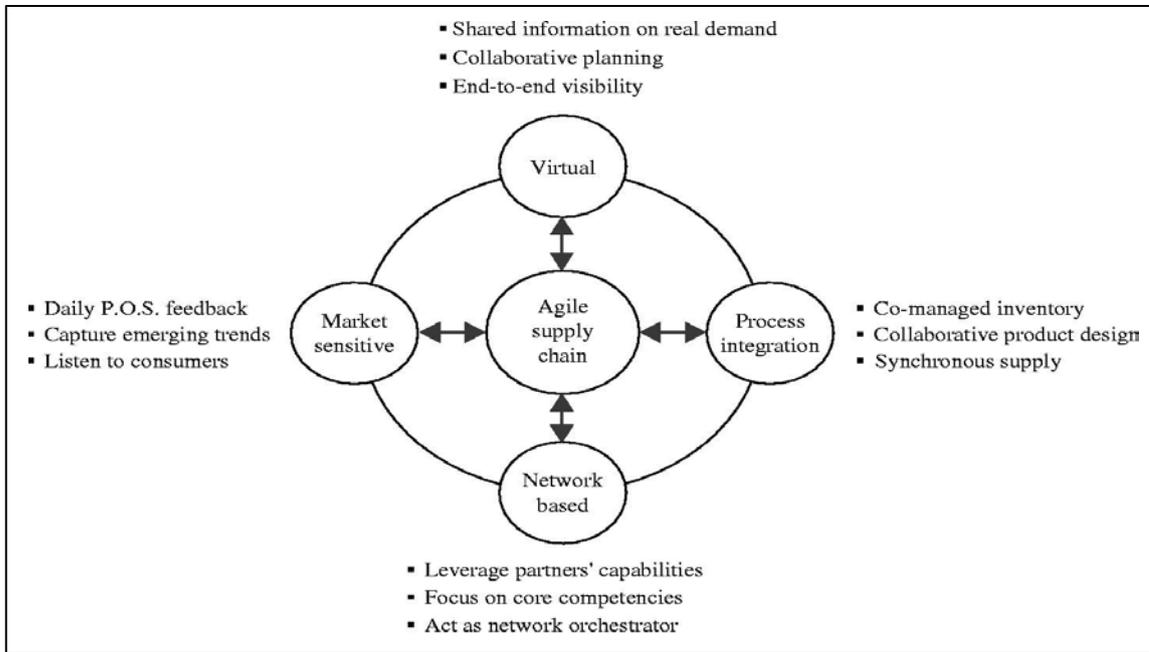
In order for supply chains to meet the requirements of the customers, Harrison and van Hoek (2011: 236), along with Christopher (2000: 37) describe a new type of supply chain, which merges both QR and time-based competition, founded on the concept of agility. According to these authors, agile supply chains were developed specifically for highly volatile markets. Harrison and van Hoek (2011: 236) describe this '*agile supply chain*' as one that is market-sensitive and focused, not on the focal company of the supply chain, but rather on the end-customers and their needs. Barve (2011: 326) lists responsiveness and customer sensitivity as essential elements of an agile supply chain. Unlike functional products that have forecast-driven, inventory-based supply chains, innovative products, as those of the fashion industry, are demand-driven and based on real-time information (Lam and Postle, 2006: 271). An agile supply chain is thus defined by Christopher (2000: 37) as a '*business-wide capability that embraces organisational structures, information systems, logistics processes and, in particular, mindsets*'. Barnes and Lea-Greenwood (cited in Zhelyazkov, 2011: 2) add to this definition by describing agile supply chains as '*quick response, shorter, more flexible, demand driven supply chains...driven by information such as market data and information-sharing between businesses in the supply chain*'. The Agile Supply Chain Framework gives more detail on the characteristics of agile value chains.

2.5. The Agile Supply Chain Framework

The Agile Supply Chain Framework was chosen as an appropriate theoretical basis for this study. This framework was established by Harrison, Christopher and Van Hoek in

1999 (Christopher, Lowson and Peck, 2004: 371). It provides a more detailed understanding of the attributes that a supply chain must have for it to be agile.

Figure 2.3: Agile Supply Chain Framework



Source: (Christopher, Lowson and Peck, 2004: 370)

The framework classifies the agile supply chain as having four dimensions or characteristics: virtual integration, market sensitivity, process integration and network based management. These are summarised in **Figure 2.3**.

2.5.1. Virtual Integration and end-to-end visibility

Linton (2014: 4) identifies integration as an important element of the modern supply chain. While many supply chains are integrated on the basis of forecasted demand, agile supply chains are based on the use of real demand. Power, Sohal, and Rahman (2001: 261) note that agile supply chain stakeholders are connected through collaboration and the exchange of real-time information, all facilitated by technology. This ensures that all supply chain stakeholders utilise the same data in order to meet the requirements of consumers. This characteristic emphasises the need for agile supply chains to maintain end-to-end visibility.

Barnes and Lea-Greenwood (cited in Zhelyazkov, 2011: 2) identify visibility as an important element that allows market sensitive supply chains to respond to the demands

they encounter. Visibility in the extended supply chain is a major challenge. Due to the extension of networks, end-to-end visibility becomes difficult (Harrison and van Hoek, 2011: 13). The U.S Resilience Project (2012: 2) explains that the inclusion of many businesses that are beyond the national borders of the country of origin has reduced visibility and made extended supply chains vulnerable to disruptions such as wars, political unsteadiness, striking workers and hostile weather conditions. Uncertainties also include the failure of individual stakeholders to determine and forecast customer demand correctly, resulting in increased variability (Simchi-Levi, Kaminsky and Simchi-Levi, 2008: 3). Penfield (2008: 4) adds that disruptions in the supply chain result in a greater amount of planned and unplanned stock in the pipeline, even in lean supply chains that ideally function on a just-in-time (JIT) basis. This is because stakeholders increase the amount of inventory that they keep on hand to mitigate the effects of these extended supply chain risks. The system-wide costs of extended supply chains thus increase and make the supply chain less responsive and flexible (Penfield, 2008: 5). It also makes the supply chain more vulnerable to obsolete inventory, theft and higher storage costs (Harrison and van Hoek, 2011: 125). Increased risks raise the costs companies incur to mitigate the negative effects of these risks (Harrison and van Hoek, 2011: 13).

A study by IBM shows that while many businesses believe that visibility is of importance for the effective and efficient running of a supply chain, very few have made it a '*top priority*' (McIntire, 2014: 181). However, Deloitte (2010: 2) reveals that executives are no longer as concerned about reducing risk in their internal organisations as they are about managing risk that comes from external partners in the extended value chain. If shared at all, information about product demand from customers takes a long time to reach all stakeholders, reducing the responsiveness of the supply chain. In addition, products move greater distances along the supply chain before reaching the final consumer. This increases the lead time variability and reduces the flexibility and responsiveness of supply chains to the demands of the consumer (Harrison and van Hoek, 2011: 125). End-to-end visibility is a challenge that Deloitte (2010: 2) recognises as of importance to supply chain risk management. Companies therefore need to incorporate strategies that allow them to efficiently eliminate some, if not all, the challenges faced by extended supply chains. One such strategy is increasing end-to-end

visibility through improving integration, communication and information-sharing amongst stakeholders in the value chain (Katunzi, 2011: 105).

2.5.2. Market Sensitivity

This framework suggests that an agile supply chain should be sensitive to the needs and wants of consumers (Barve, 2011: 326). Similarly, Harrison and van Hoek (2011: 236) note that to be successful in the competitive global markets, companies need to have a market-sensitive approach to managing their supply chains. This is commonly facilitated by the use of point-of-sale information (Gattorna, 2003: 293), Efficient Consumer Response (ECR) and information technology, such as RFID technology (Harrison and van Hoek, 2011). According to Mihm (2010: 57), using such information technology, Zara is able to deliver runway trends spotted at prestigious fashion shows such as those in Milan and Paris to retail outlets in a few days. This has increased their market sensitivity and responsiveness.

Christopher, Lowson and Peck (2004: 370) assert that in the fashion industry, information captured from retailers through point-of-sale data is very useful for determining the demands of customers and analysing the points of replenishment. According to Mihm (2010: 57), it is not sufficient for companies to just focus on providing the latest trends, but it is also important that these are allocated in the right quantities for individual outlets. Linton (2014: 2) and Heizer and Render (2011: 136) emphasise demand management as an important input for the supply chain.

Companies such as Zara not only use point of sale information, but they also make use of fashion scouts and salespeople who are in charge of distinguishing between the items and styles that customers would like to purchase and the ones they would be less attracted to purchasing (Christopher, Lowson and Peck, 2004: 369). This is important information for agile supply chains. Linton (2014: 3) further elaborates that in order to achieve a competitive advantage, focal companies should be in charge of ensuring that all partners of the supply chain are knowledgeable about the needs of the final customers. The information gathered by Zara's scouts and salespeople, is accumulated and communicated to designers and other relevant stakeholders in the supply chain (Christopher, Lowson and Peck, 2004: 369). Barnes and Lea-Greenwood (2010: 768) explain that in order to be completely market sensitive and responsive, information about customer needs should also be communicated to retail outlet personnel.

According to the authors (Barnes and Lea-Greenwood, 2010: 768), the two-way communication allows for market sensitivity to be extended to elements that contribute to the customer's shopping experience and to easy identification of fast fashion products. Barnes and Lea-Greenwood (2010: 768) explain that while outlets are continuously receiving stock on new trends, sometimes on a weekly basis, this does not always transfer to window displays because store personnel are either not aware of the latest trends or are overwhelmed by the amount of new stock that is delivered. According to Barnes and Lea-Greenwood (2010: 768), market sensitivity can thus be extended to the outlet through continuously updated window displays that include the latest fashion products and improved personnel knowledge of quick selling and trendy pieces.

Communication is a vital element for a market-sensitive supply chain. This element allows the supply chain to be more responsive to unanticipated changes in the environment. Linton (2014: 3) explains that communication, especially in a demand-driven supply chain, is a useful input for flexibility, as it distributes relevant information to stakeholders and allows them to adjust to these changes. It is also an effective input that allows supply chains to become aware of new opportunities for businesses in the market and to respond to these.

2.5.3. Process Integration

This construct assesses the ability of the supply chain to seamlessly integrate processes and product movement along the supply chain through '*virtual teams*'. This is done so that inventory management and product design are done collaboratively in order to ensure that the supply chain is flexible enough to be responsive to any changes or disruptions that may occur (Ngwainbi, 2008: 42). Process integration is a challenge for agile supply chains in the modern global market due to the outsourcing of various processes to external stakeholders (Christopher, 2000: 4). This can cause delays and hence result in companies increasing the amount of buffer stock they keep within their facilities, in order to cover these inefficiencies.

According to Heizer and Render (2011: 500), '*the objective of inventory management is to strike a balance between inventory investment and customer service*'. There are three

types of inventory that companies may keep; raw materials, work-in-progress and finished goods inventory (Magloff, no date: 1).

Companies keep inventory for several reasons:

- Inventory protects companies from fluctuations in demand (Heizer and Render, 2011: 500). However, Dowling (2014:) notes that changes in customer demands may increase the risks of keeping high levels of inventory in anticipation of future demand.
- Incentives, such as quantity discounts, offered by suppliers to encourage their business-to-business (B2B) customers to purchase more goods at a time increase the level of inventory kept by companies (Dowling, 2014: 8). Heizer and Render (2011: 501) further explain that an increase in the quantities purchased by distributors and retailers also reduces the costs of transporting these goods and the overall costs of the inventory, through economies of scale.
- Keeping inventory protects organisations from unfavourable changes in the economic climate, for example, inflation, which may increase the prices of goods (Heizer and Render, 2011: 501).
- Increased lead times due to outsourcing to suppliers located in different geographical areas, also encourages inventory keeping (Simchi-Levi, Kaminsky and Simchi-Levi, 2008: 31).

With modern technology, companies within the supply chain, regardless of their geographic location, are able to integrate their processes in real-time. They are also able to reduce the need to increase costs of inventory on-hand and the costs of distributing inaccurate information.

The integration of supply chain members helps them to decrease the costs they incur due to uncertainties and risks. Wal-Mart uses this method successfully to reduce the inventory costs of its entire supply chain, while managing to respond quickly to the needs of its customers. The use of technology, such as single information networks, enables Wal-Mart, as the focal company, to seamlessly integrate its supply chain members (Linton, 2014: 4).

Companies have discovered the benefits that sharing information has to ensuring that their supply chains are responsive to the needs of customers, through maintaining on-

the-shelf availability and through ensuring that this is done with minimum amount of inventory.

Christopher, Lawson and Peck (2004: 370) went on to suggest the use of Co-Managed Inventory (CMI) as a method of managing inventory in an agile supply chain. Through CMI, suppliers and retailers collaborate to determine levels of inventory, through the use of real-time data and also determine at what level stock will need to be replenished within the retailer's facilities. However, while this is a good method to use to help suppliers and retailers collaborate, Christopher, Lawson and Peck (2004: 370) warn that the benefits of this system can mainly be reaped if the demand for the product is moderately stable and replenishments are necessary within a specific season.

2.5.4. Network Based Management

Due to increasingly complex and extended supply chains, a system-wide approach to managing the relationships between all relevant stakeholders in the supply chain is important (Ngwainbi, 2008: 27). This ensures that there is end-to-end visibility and the supply chain is both responsive and flexible to market changes. The complexity of supply chains has stimulated the growing movement towards focal companies or retailers becoming the coordinators of their networks of partners (Christopher, Lawson and Peck, 2004: 371). With over 300 small subcontractors involved in Zara's network (Petro, 2012: 7), the company requires a very strategic approach to managing each of these relationships in order for them to be beneficial to the company achieving its goals. Zara performs some activities that are less costly, within its facilities, such as dyeing and packaging. Its subcontractors are included in the supply chain to perform the rest of the activities that would be more costly to Zara if they were not outsourced (Petro, 2012: 6-7).

Simchi-Levi, Kaminsky and Simchi-Levi (2008: 247) identify this type of relationship management between a retailer and its suppliers, as a strategic alliance. Strategic alliances are described as '*multifaceted, goal-oriented, long-term partnerships between two companies in which both risks and rewards are shared*'. While acquiring these companies may not be an option, through strategic alliances companies are able to assist in the growth of the companies they have partnered with, sometimes through investing resources into the companies. Zara thus acts as the focal company, providing the individual firms in its network with financial, logistical and technological assistance

from its parent company, Inditex S.A (Christopher, Lawson and Peck, 2004: 371). Zara, therefore, creates collaborative, value-adding relationships with these companies which in turn help in the achievement of flexible, reliable, quality services to final consumers.

According to Simchi-Levi, Kaminsky and Simchi-Levi (2008: 254), in order to be responsive, advanced information systems need to be developed and adopted by all partners in the supply chain. Technologies used to achieve this are point-of-sale data (POS), Electronic Data Interchange (EDI), Vendor-Managed Inventory (VMI) and other e-business based technologies. Katunzi (2011: 107) also acknowledges that there may be several issues that may prevent the smooth flowing of such integration and collaboration. For example, developing trust is an important factor as many companies may be wary of sharing confidential information. Communication and cooperation is also an important element for these relationships.

2.6. Lean supply chains versus Agile supply chains

Although the concepts of lean and agile may sometimes be confused, Christopher (2000: 37) clearly distinguished between the two. This study revealed that the concept of lean is focused on 'doing more with less'. Lean, which was made popular by the Toyota Production System (TPS), encourages the reduction of waste and the use of just-in-time (JIT) methods of reducing inventory (Heizer and Render, 2011: 654). This means that inventory is only delivered to manufacturing facilities when it is needed. According to Christopher (2000: 37), companies that practise lean methods are, in theory, required to maintain '*zero inventory*' within their facilities. In addition, Harrison and van Hoek (2011: 236) note that lean focuses on the production of large volumes of goods, with a low variety. A lean strategy is used for the production of functional products which Lam and Postle (2006: 271) identify as having relatively predictable and stable demands, and the supply chain is therefore forecast-driven. Lean supply chains are also suitable for commodities, where demand is stable and forecasting is carried out by individual stakeholders, based on historical data, rather than real-time data (Harrison and van Hoek, 2011: 237).

Agile supply chains, however, require market sensitivity as discussed by Harrison and van Hoek (2011: 236) and are thus demand-driven (Christopher, 2000: 39). In order to achieve this market sensitivity, with the highly volatile and unpredictable demand of

innovative products, Christopher (2000: 37) explains that a more flexible supply chain is needed, which is responsive to real-time changes in the requirements of consumers. Unlike in lean manufacturing, Harrison and van Hoek (2011: 236) point out that agile supply chains make use of '*smaller production runs*' that enable them to be more flexible at a lower cost. The root of the differences between lean and agile supply chains can also be attributed to the differences in their market winners and qualifiers. Saini (2007: 7) notes that lean supply chains have cost as a market winner. However, agile supply chains are focused on three market qualifiers; '*quality, cost and lead time*'. Saini (2007: 7) further identifies high quality customer service delivery as a market winner for agile supply chains.

Information is not commonly shared throughout the lean supply chain, making forecasts largely unreliable and inaccurate, in many situations. This makes supply chains inflexible to changes in demand and trends (Simchi-Levi, Kaminsky and Simchi-Levi, 2008; Christopher, 2000: 39). In contrast, agile supply chains embrace the value of information sharing throughout the value chain, due to the volatility of the market. The agile supply chain makes use of several technologies in order to improve the efficiency of information sharing among stakeholders. The use of Radio Frequency Identification Devices (RFID), EDI and Enterprise Resource Planning (ERP) allows stakeholders to record and share real-time data about consumers demands (Christopher, 2000: 39).

The strategies used in lean and agile supply chains are also different. Lean supply chains produce large volumes of products then proceed to push them through the supply chain (Simchi-Levi, Kaminsky and Simchi-Levi, 2008). Agile supply chains, on the other hand, are more market-sensitive and therefore make use of pull strategies, which focus mainly on the production and distribution of products that consumers have been proven, explicitly or implicitly through market research, to want and need (Harrison and van Hoek, 2011: 154).

Both methods have benefits and drawbacks. A method which combines lean and agile benefits has been developed to exploit the benefits of both. This hybrid of the two concepts of lean and agile supply chains is referred to as '*leagility*' (Harrison and van Hoek, 2011: 154). Simchi-Levi, Kaminsky and Simchi-Levi (2008: 190) note the use of push-pull systems in market-driven, innovative industries, that also need to reduce costs through the benefits of lean methods and to increase flexibility and responsiveness

through agility. The extension of lead times, as a result of the long distances between stakeholders, reduces the potential for quick responsiveness to take place in purely agile or pull systems. Simchi-Levi, Kaminsky and Simchi-Levi (2008: 190) and Harrison and van Hoek (2011: 236), therefore agree that in order to reap the benefits of low costs presented by the use of lean and push systems, these can be implemented in upstream activities of the value system. For example, Zara sources materials that can be purchased in bulk and then dyed to suit the individual trends and styles that consumers may demand. This allows the company to reap the benefits of low cost purchasing and reduce the waste and risks related to purchasing individual materials for individual styles and trends. In addition, Christopher (2000: 41) notes that these hybrid methods are useful for companies that have a combination of products that have a stable demand and those that have more volatile demand.

Table 2.1 provides a comparison between lean supply chains, which are used for functional products, as earlier described by Lam and Postle (2006: 271), and agile supply chains, which are used for innovative, fashion products. This is a useful comparison for the research as it briefly summarises and shows the differences in the functional goods supply chain and the innovative goods supply chain.

However, while this table gives a comparison of lean and agile supply chains, Harrison and van Hoek (2011: 237) make reference to the fact that companies do not need to be rigid and stick to using one or the other approach when planning their supply chain strategies. The authors encourage the use of lean approaches to a particular point within the supply chain downstream processes and then making use of agile approaches for the rest of the supply chain. This strategy of combining approaches is called '*leagility*'. Through such a strategy, companies are able to enjoy the benefits that each of the approaches can provide their supply chains. Benefits include: lower costs of supply chain processes, increased productivity, along with also ensuring that companies consistently meet the needs of customers through being responsive using customisation.

Table 2.1: Comparison of lean supply with agile supply: the distinguishing attributes

Distinguishing attributes	Lean supply	Agile supply
Typical products	Commodities	Fashion goods
Marketplace demand	Predictable	Volatile
Product variety	Low	High
Product lifecycle	Long	Short
Customer drivers	Cost	Availability
Profit margin	Low	High
Dominant costs	Physical costs	Marketability costs
Stock-out penalties	Long-term contractual	Immediate and volatile
Purchasing policy	Buy materials	Assign capacity
Information enrichment	Highly desirable	Obligatory
Forecasting mechanism	Algorithmic	Consultative

Source: (Harrison and van Hoek, 2011: 237)

2.7. Conclusion

In conclusion, the fashion industry is characterised as highly unpredictable. The nature of the industry is such that products and trends have short lifecycles, demand is highly variable and influenced by many factors, the market is not predictable and consumers of the products have impulsive purchasing behaviours. As a result of these complexities, companies in the industry have moved from focusing on reducing their supply chain costs, to implementing more agile strategies of managing their supply chains. The Agile Supply Chain Framework, used to guide the study, has four components which are noted as essential for agile supply chains. These are market sensitivity, process integration, virtual integration and network based management. In order to become more agile and competitive, companies in the fashion industry have begun to focus on various elements of these constructs. Companies such as Zara have stood out as exemplary benchmarks for agility. South African companies on the other hand, are

moving from more lean approaches to agile ones in order to maintain their competitiveness in the almost saturated local market.

CHAPTER THREE: LITERATURE REVIEW OF SOCIAL MEDIA IN THE SUPPLY CHAIN

3.1. Introduction

With globalisation removing international borders in the business world, supply chains have increased their networks of partners, thus raising the complexity of coordinating these networks. This has exposed companies to a variety of opportunities, along with both expected and unexpected threats (Sianipar and Yudoko, 2012: 94). According to this literature, the management and monitoring of supply chains is vital for companies with complex supply chains to fully capitalise on the benefits of having an international network of partners. In order to adapt to continuous developments in the external environment and mitigate associated threats, Simchi-Levi, Kaminsky and Simchi-Levi (2008: 1) add that extended supply chains are starting to focus more on improving their methods and systems, for example, through continuous technological improvements. However, although there is heightened motivation to increase technological developments in the supply chain, research has shown that more attention should be given towards improving the rate of adoption of these new technologies by the industry (O’Leary, 2011: 121; Today’s Trucking, 2010: 1). According to Today’s Trucking (2010: 1-3) and O’Leary (2011: 121), the supply chain and operations sectors are known for being hesitant to adopt and implement new technologies.

Technologies such as EDI, RFID and ERP have had a historical impact on the development of the global supply chain industry, due to their indisputable information-sharing and integration benefits. However, O’Leary (2011: 122) argues that some of these automated systems have their limitations and are designed to record but not necessarily capture information that may prove valuable to the supply chain. Both O’Leary (2008: 246) and Gonzalez (2011: 6) note that many of these artificially intelligent systems do not require or facilitate human interaction. Gonzalez (2011: 7) further predicts that it is this human interaction amongst supply chain stakeholders which will enable supply chains to be more responsive to continuous external market changes and disruptions. Despite mixed reviews, social media applications, also known as the Web 2.0 (O’Leary, 2011: 123), are surfacing as potentially unconventional solutions to some of these limitations.

Social media applications stand out as revolutionary tools for use in both social and business settings (Baruah, 2012: 1). Boasting approximately 1.2 billion users globally (Howells, 2011: 4), social media tools continue to grow in popularity. However, this growth is mainly seen in the marketing industry, due to the media's ability to facilitate engagement and collaboration with consumers (Uzunoğlu and Öksüz, 2014: 271). The tools are also more popular and attractive for social purposes, particularly amongst young people (Baruah, 2012: 1), including university students (Chu, 2013: 30) and young working adults (Howells, 2011: 7). Howells (2011: 5) also notes that the use of desktop computers is slowly decreasing as people move towards more convenient and mobile devices such as smart phones and tablets.

While social media are mainly recognised for their marketing and socialising capabilities, Mckinsey Global Institute (2012: 27) lists several other industries that are currently adopting Web 2.0 applications: transportation, manufacturing and retail industries, which are all involved in the value chain. Studies by authors such as Gonzalez (2013), O'Leary (2011), along with Xu, Zhao, Shan and Huang (2014) provide optimistic reviews on social media's implementation in the industry. However, speculation on their benefits to the supply chain, along with the current slow rate of adoption, have been consistent with the industry's reputation for failing to keep up-to-date with technological developments (Today's Trucking, 2010: 3; O'Leary, 2011: 121).

Most published studies focus on social media's potential in the general supply chain and the types of responses towards it (Gonzalez, 2013; O'Leary, 2011; Xu *et al.*, 2014). This study explores the potential for social media to be implemented, concurrent with existing technologies, as supportive tools for the improvement of agile fashion industry supply chains. The study, therefore, does not suggest the replacement of already established and relevant technological tools in the supply chain.

3.2. Background of social media

Not too long ago the capacity to create and distribute information was limited to large organisations and prominent individuals. However, this changed with the development and low-cost widespread use of the internet and digital technology (Mayfield, 2007: 8). The development of social media, as part of the new digital world, has made it cheaper

and easier for individuals to share and create content on a global platform (Mayfield, 2007: 8). O’Leary (2012: 2) defines social media as ‘*internet-based applications that allow for the development of user generated information and provide a forum for other users to interact with each other*’. Similarly, the Mckinsey Global Institute (2012: 18) defines social media as ‘*digital technologies used by people to interact socially and together to create, enhance, and exchange content*’.

While many claimed to have coined the term social media, Bercovici’s (2010: 3) research on the root of the term, found that it was first used in print in 1997 by a former AOL executive named Ted Leonsis. In the article in which the term was first used, Leonsis urged organisations to establish a social platform for consumers to communicate and entertain themselves (Bercovici, 2010: 3). Trottier and Fuchs (2014: 4) attribute the establishment and introduction of Web 2.0, another term used to describe social media, to Tim O’Reilly. In 2005, Tim O’Reilly described the future direction of the Web following the failure of a number of internet companies during what was referred as the ‘*dot-com crisis,*’ which occurred after an economic and financial slump. On the other hand, Bruns (2009: 10) views the advent of blogs in the 1990s as the first type of social media to have been widely used by consumers. With time other social media, such as MySpace, Facebook, YouTube, LinkedIn and Twitter, evolved and created possibilities for people all over the world, including South Africa, to communicate socially via the web. As a result of social media, users have found means to build relationships through collaboration (Sánchez-Franco, Villarejo-Ramos and Martín-Velicia, 2011: 257).

According to Howells (2011: 9) and Lekhanya (2013: 2), globally and in South Africa, Facebook is the most popular tool. Lekhanya (2013: 2) adds that the medium has more than 4.8 million users within South Africa. However, Facebook is not the only social networking tool available. Several other tools continue to arise. While Facebook has attracted a number of users, it is closely followed by YouTube on the popularity scale. It was documented in 2009 that YouTube had an estimated 100.9 million viewers who were exposed to 6.3 billion videos. YouTube not only provides consumers with a platform to choose and watch a variety of videos on the web, but it also gives consumers means to create and share their own content through consumer-generated advertising (Campbell *et al.*, 2011: 87). Blue Magnet (2013: 6) reveals that

approximately 6 million South Africans use YouTube. While this is a minute percentage of the 800 million new visitors the media tool attracts on a monthly basis (Blue Magnet, 2013: 6) and is not a significant figure compared to the population of the country itself, it is nonetheless an indicator of the direction which social media usage is taking in the country.

In addition to YouTube and Facebook, there has been a growth in Twitter users around the world. According to Blue Magnet (2013: 3), a mere 405 000 of the 200 million Twitter accounts present worldwide are actively used by South Africans. Twitter has a relatively small South African following as compared to YouTube and Facebook, however, the growth of Twitter usage in South Africa is increasing. Statistics from Blue Magnet (2013: 3) also reveal that 3.4 million tweets are generated by South Africans every month. While Twitter is still in its early stages of adoption, similarly to YouTube and Facebook, it has attracted businesses and given them a means to engage with their target markets in real-time.

The establishment of these social media tools has not only transformed the ways in which consumers communicate on a social platform but it has also given companies opportunities to directly understand, communicate and engage with their target markets in a more social environment (Uzunoğlu, 2011: 1). The popularity of social media has made them vital marketing tools for modern organisations (Uzunoğlu, 2011: 1). For these reasons social media have been explored in great detail for interaction with customers (O’Leary, 2011: 124). However, it is still to be established if social media can be as successfully used in other functions of an organisation. Many South African fashion industry retail companies have adopted the various social media platforms in their marketing strategies but have not visibly applied them to their supply chains.

3.3. Characteristics of social media

There are various common characteristics of social media platforms. These socially interactive platforms (Chan-Olmsted, Cho and Kyunghee, 2013: 154), facilitated by information technology, enable individuals to determine, identify and engage with other users who share similar interests, thereby formulating communities (McKinsey Global Institute, 2012: 17). Users can seek entertainment, play games with other users (despite their geographical locations), communicate, co-create information, for example through

Wikis, and become more informed (Kaplan and Haenlein, 2010: 63). Social media have also presented global platforms for collective action (Shirky, 2011: 1) against social, environmental and political injustice, for example, the #SavetheRhino (Abbas, 2014: 3) and #Bringbackourgirls (Sesay, 2015: 1) campaigns.

Social media allow for two-way communication to take place (Nordström, 2012: 2). This has made these networking technologies more popular with marketers, who previously relied only on one-way communication channels with consumers, for example, using television and billboards (Chan-Olmsted, Cho and Kyunghee, 2013: 154). According to Edgecomb (2013: 11), the ability to engage in conversations makes social media platforms more attractive to businesses who would like to receive feedback from consumers. However, Chan-Olmsted, Cho and Kyunghee (2013: 154) note that the level of interaction varies across different platforms. Facebook is identified as a platform that enables greater interaction, with no limitations on the amount of characters one can type per post. Twitter, on the other hand, is recognised as less conducive to conversations, due to its 140 character limitation.

Social media encourage participation. Participation can be in the form of creating posts or in the form of endorsements, through ‘liking’ and ‘sharing’ posts from other users (Mckinsey Global Institute, 2012: 17). Participation can be determined by the number of times that an individual frequents a platform. Duggan, Ellison, Lampe, Lenhart and Madden (2014: 5) note that Facebook has frequent visitors, with a number of the platform’s users logging in to use the site on a daily basis. According to Chu (2011: 30), social media platforms enable users to join various ‘*groups, communities and events*’. Greenstein (2009: 7) explains that, with privacy settings, information posted in these groups is accessible for consumption only to users who are members of these groups. Chu (2011: 30) elaborates that marketers seeking viral advertising are attracted to social media applications because the number of groups that the average user may be a part of, on each social media platform, may increase the user’s participation in sharing and commenting on content.

3.4. Classification of social media

According to Baruah (2012: 4), social media can be classified under four categories: social networking sites, blogs, content generation and sharing sites and user appraisal sites. These will be discussed in more detail below:

3.4.1. Social networking sites

Social networking sites are built to enable users to have a platform to formulate and maintain relationships (Chan-Olmsted, Cho and Kyunghee, 2013: 154, Baruah, 2012: 4). Each of the social networking technologies enable their users to create profile pages using basic details about themselves, including their interests, gender and location (Baruah, 2012: 4). Using these profile pages, users interact with one another through instantly and freely generating, commenting and sharing or distributing content (Boyd and Ellison, 2008: 211-214). The content that may be generated includes videos, music and photographs. This type of communication is facilitated by the internet, ensuring that those making use of it are not limited by their geographical locations. They are also used as a form of relationship building and maintenance, as they enable users to frequently upload their status. These statuses are visible to the user's entire network of connections, thereby increasing the number of people that a single individual can communicate with at any given point (Mckinsey Global Institute, 2012: 17). A user's network can consist of friends, associates, family members and sometimes individuals that a user is not familiar with, but has allowed into their network (Baruah, 2012: 4). Examples of such social networking sites are Facebook, Twitter and LinkedIn.

3.4.2. Blogs

The word, 'blog' is derived from the term 'weblog' (Hookway, 2008: 91; Baruah, 2012: 4). Hookway (2008: 91) defines a blog as '*a website which contains a series of frequently updated, reverse chronologically ordered posts on a common web page, usually written by a single author*'. While Hookway (2008: 91) defines a blog as normally having one author, Baruah (2012: 4) mentions companies and groups of individuals as potential creators and authors of blogs. If made for public viewing, blogs can be easily accessible for anyone to read (Baruah, 2012: 4) and comment or provide feedback on (Hookway, 2008: 91). Examples of free sites available for the creation of blogs include Wordpress, Tumblr and Blogger (Square Space, 2013: 1). Microblogs,

such as Twitter, are another type of blog (Chan-Olmsted, Cho and Kyunghye, 2013: 154).

3.4.3. Content generating and sharing sites

According to Baruah (2012: 4), content generating and sharing sites ‘*serve as sources of information for various topics*’. These are divided into categories, for example, photo-sharing sites, such as Instagram and Pinterest, video-sharing sites like YouTube, slide-sharing sites and document-sharing sites. Through crowd-sourcing, internet users can be outsourced by companies to produce and contribute content on these sites (Liu, Lehdonvirta, Alexandrova, Liu and Nakajima, 2011: 1). O’Leary (2012: 5) states that involving supply chain stakeholders in crowd-sourcing can enable the supply chain to gather varying perspectives on solutions to unforeseen events or disruptions that the supply chain may experience.

3.4.4. User appraisal sites

According to Karapetyan (2013: 6), consumers are increasingly using social media to communicate their post-purchase product and service ratings and reviews. Baruah (2012: 4) adds that while all categories of social media sites allow users to appraise products and services, unlike social networking sites, blogs and content generating and sharing sites, appraisal sites are built solely for reviews of products. Due to the power of word of mouth, consumers now rely on sites such as www.mouthshut.com and www.hellopeter.com to provide reliable information for them to make informed decisions before purchasing products and services from different organisations (Baruah, 2012: 4). McKinsey Global Institute (2012: 19) elaborates that this type of information is useful due to its authentic and unfiltered nature, which allows companies to see exactly how consumers feel about particular products and services.

3.5. Social media in the supply chain

The use of social media in the supply chain is relatively new. Computer Economics (2014: 2) explains that the benefits that social media tools have for businesses and especially for the supply chain are continuously increasing. According to Weaver (2013: 4), companies that have implemented social media in their operations have

gained considerably compared to those that have not. Weaver (2013: 4) notes that the stock-out rates for companies with a social media presence were 3.8% less than those recorded for companies that had not participated in social networking. Furthermore, companies that are involved in social networking were also found to have more on time deliveries compared to those that did not (Weaver, 2013: 4).

Through social media, companies are able to formulate and maintain relationships with both end-consumers and suppliers in the value chain (Fronetics Strategic Advisors, 2014: 3). In addition, supply chains benefit from increased transparency, improved processes through the integration and collaboration of stakeholders (Weaver, 2013: 4) and responsiveness (Computer Economics, 2014: 2). Supply chains can derive these advantages from the information-sharing qualities of social media. According to O’Leary (2012: 3), social media can have five effects on the information flows within organisations and their supply chains. These effects on information flows are as follows:

- **Amount of information flows:** Using social media, information from a larger number of stakeholders can be captured from discussions. This allows the supply chain to gather more information that can be useful towards improving its efficiency,
- **Visibility of information flows:** Information posted on social media is visible to all stakeholders who have been granted access to the various platforms, allowing for transparency within an organisation and its supply chain,
- **Direction of information flows:** Information in supply chains and organisations normally flows in a certain manner. Information may flow in one direction; for example, from top management to lower management. However, the use of social media ensures that it flows in many other directions so that there can be more internal and external integration through increased visibility and transparency,
- **Depth of information flows:** With the potential for the involvement of multiple stakeholders in discussions, social media can allow supply chains to increase the ‘depth’ of the information gathered on various topics due to the larger range of perspectives and
- **Velocity of information flows:** Social media increase the speed with which real-time critical information is distributed to relevant supply chain

stakeholders, thus improving the responsiveness of the value chain (O'Leary, 2012: 3).

However, while there are many benefits of social media to the supply chain, their adoption is still low. Gonzalez (2013: 8) conducted a survey to determine the perceptions of supply chain professionals towards the implementation of social media in the field. The results of this survey are shown in **Figure 3.1**. The findings reveal that while many companies are still cautious of how they adopt social media within their supply chains, many others acknowledge that there is massive potential for the tools to change the ways in which business is conducted. A greater percentage of the companies involved in this survey were aware of the possibilities social media could have to improving the efficiency of supply chains (Gonzalez, 2013: 9). The study shows that 18.4 % of companies did not see the tools as offering any meaningful benefits for the supply chain compared to a significant 45.3 % who believed that using social networks would improve the efficiency of supply chains, combined with 29.6% who saw social networks transforming the processes of the supply chain for the better. Only 6.7 % actually believed that the tools would have negative effects on the overall productivity and cost efficiency of supply chains. While the responses to the use of social media are mostly positive, Gonzalez (2013: 9), and Today's Trucking (2010: 3) agree that many companies are still uncertain about where exactly the technology would fit in the supply chain and how to go about ensuring that social media are utilised fully to improve the efficiency of supply chains.

Figure 3.1: What impact will social networks have on supply chain management over the next five years?



Source: (Gonzalez, 2013: 11)

From the literature already reviewed, it can be seen that social media's adoption in the supply chain industry is generally slow. Although a number of companies remain sceptical of using social media to improve their supply chains, Howells (2011: 7) explains that many others have gained significant benefits from implementing them in this area. Companies such as UPS have established their usefulness in their supply chains, paving the way for other firms to follow suit (Macleod, 2010: 4). Howells (2011: 11) argues that with the developments in technology, it is inevitable that social media will become valuable to the supply chain. O' Leary (2012: 2) adds that these developments are in the near future.

3.6. Types of social media currently used in the supply chain

According to Sauder (2013: 1), there is a widespread assumption, amongst company executives, that the term social media only refers to platforms used to socialise on a personal level and not for business purposes. When many think of social media, the top of mind tools, according to O'Leary (2012: 2), are Facebook, Twitter and LinkedIn. However, Today's Trucking (2010: 9) notes that while the three are more popularly used, there are many other applications that continue to evolve and provide services for consumers and businesses. An example of one of these other applications is Enterprise

Social Software, which companies can use for integration and visibility. Many organisations have used other types of social media to become more effective and efficient in their supply chains (Sauder, 2013: 2). Various types of social media applications used in the supply chain will be discussed in more detail in this section of the literature review. Their potential applications to the supply chain and their contributions to improving the agility, flexibility and responsiveness of the supply chain are also noted. This information is summarised, at the end of this section, in **Table 3.1**.

3.6.1. Twitter

According to Chan-Olmsted, Cho and Kyunghee (2013: 154) and Baruah (2012: 4), Twitter is a micro-blogging platform. However, unlike normal blogs, these authors note that Twitter has a limitation for the amount of characters that one may use for each individual post. Many view Twitter as a platform to socialise or purely as a marketing tool for businesses to connect with consumers. However, supply chain stakeholders such as Con-way have found methods to utilise the features of Twitter to their advantage (Sauder, 2013: 3).

3.6.1.1. Tweetload

Con-way is a Less-than-Truckload (LTL) 3PL provider. The company developed Tweetload, a Twitter account. Ore and Arbor (2010: 1) describe the tool as *'an innovative, patent-pending tool that helps carriers find freight loads leveraging Twitter'*.

By following the Twitter account, <http://www.twitter.com/ConwayTweetLoad>, carriers are able to view information about shipments that are currently available and follow links to the company's load board (online load matching system) to bid on these shipments (Sauder, 2013: 3). This information is updated every fifteen minutes on Tweetload, ensuring that carriers are provided with real-time information for better and more efficient scheduling. The information uploaded on Tweetload is taken directly from Con-way's load board, using an application designed by the company. The application extracts summaries of the load board to be uploaded onto Tweetload (Sauder, 2013: 3; Ore and Arbor, 2010: 1) The president of the American Trucking Associations, Bill Graves commented on how innovations such as Tweetload will strengthen the relationship between shippers and carriers and make business more easier and convenient (Ore and Arbor, 2010: 2).

3.6.1.2. Business-to-business consumer relationship management

In addition to lead updates, Twitter is used by marketers to engage with the end-consumer, but companies such as UPS have found that this platform can be essentially beneficial to engage with business-to-business (B2B) customers. Twitter is used by UPS for B2B customer service purposes. UPS is an American logistics company with a global presence (UPS, 2014: 1). UPS uses Twitter to engage in two-way dialogues with its consumers. Using this platform, the company has managed to communicate with customers about delayed deliveries, tracking numbers, dates for when packages will be delivered and answer any queries concerning the company, in a convenient platform (Macleod, 2010: 3-5). While some may question the privacy concerning such a platform, Ellen Heinrich, a social media manager for UPS, commented that many customers are in fact comfortable with communicating with the company on such a public platform. Ellen Heinrich also mentioned how some customers are eager to find other customers using Twitter, who may have similar queries and seeking advice in an online community (Macleod, 2010: 4). However, to cater for engaging on more private queries, for example, related to tracking numbers, UPS also communicates with its clients using the direct message feature Twitter offers.

3.6.1.3. Risk management

The global extension of supply chains has increased the vulnerability of stakeholders to unforeseen events and disruptions, making factors such as risk identification and mitigation essential for the survival of modern value chains (Supply Chains Risk Leadership Council, 2011: 2). According to O’Leary (2011: 127), Twitter could be a potentially beneficial tool for alerting supply chains to potential risk events. Gonzalez (2015: 10) adds that this real-time information can facilitate the early detection of risks in order for the supply chain network to be efficiently coordinated so as to decrease or remove the effects of the threats to the value chain. Information relating to transportation disruptive events can be communicated using Twitter. For example, information about accidents, traffic congestion and closures can enable trucks to change routes and prevent delivery delays (O’Leary, 2011: 127).

In addition, Brownstone (2013: 3) states that Twitter is able to disseminate news about disruptive events, particularly concerning riots and disasters more quickly than traditional news media. Gonzalez (2015: 10) gives the example of an earthquake in

Virginia, in 2011, which had a magnitude of 5.8 on the Richter scale. Information about the earthquake was first communicated on Twitter by those initially affected. This information alerted people in New York forty seconds before that area was affected. This real-time information enabled the dissemination of warnings quicker than the official alerts which generally take between two and twenty minutes (Gonzalez, 2015: 10). Early detection of potentially disruptive events can enable supply chains to be more responsive.

O'Leary (2011: 127) further notes that not only can social media tools like Twitter communicate that a disruption exists, but the tools can also be used during the course of the disruption management to communicate with relevant and affected supply chain stakeholders. For this reason, IDV Solutions, an Enterprise Risk Visualisation provider that allows its customers to detect and manage risks using its software, has incorporated Twitter into its software (IDV Solutions, 2014: 1). Through connecting Twitter to its software, their B2B customers are able to have real-time identification of potential disruptions (IDV Solutions, 2014: 2).

3.6.1.4. Demand forecasting

Through demand forecasting companies can make predictions of the future demand for their products and services (Heizer and Render, 2011: 137). This knowledge is relevant as an input to a supply chain's scheduling and production capacity. Carroll (2015: 1) notes that forecasting methods and agile strategies in supply chains are necessary to ensure the efficient management of inventory. According to this source, a company should neither overstock nor under stock because this will have negative impacts on customer service delivery and the organisation's revenue. Moreover, due to the short product lifecycles of fashion products that were noted in Chapter Two from studies by Bhardwaj and Fairhurst (2010: 166) and Christopher, Lowson and Peck (2004: 372), accuracy in the amount of stock kept for each fashion trend and style is vital. According to Heizer and Render (2011: 137), knowing the potential demand for future products and services is also a strategic input for other departments such as marketing and finance.

Carroll (2015: 2) explores the potential Twitter has for improving the accuracy of demand forecasts. Similar to Christopher, Lowson and Peck (2004: 367), Carroll (2015: 2) comments on how the level of demand for a product or service can be motivated by

the external factors that target consumers are exposed to. While Christopher, Lowson and Peck (2004: 367) mainly focused on the environmental influences for fashion product consumers, both authors note social events and celebrities as influential elements. For example, Rawi (2011: 1) reports on the demand that was raised for a dress that Pippa Middleton, the Duchess of Cambridge's sister, wore for the British royal wedding, in 2011. Although the original Alexander McQueen dress was marked at a high price of 20 000 pounds, alternative, lower priced dresses were made available on Net-a-Porter and were immediately sold out (Rawi, 2011: 5-12). Determining the extent to which each external factor influences consumer behaviour could be useful information during demand forecasting (Carroll, 2015: 2), especially for highly impulsive and unpredictable fashion markets (Christopher, Lowson and Peck, 2004: 369). Carroll (2015: 2) and Gonzalez (2015: 5) suggest that Twitter could be used to monitor the discussions that target consumers have about these various environmental elements. While Carroll (2015: 2) did not claim that monitoring Twitter discussions could impact greatly on the accuracy of demand forecasting, the author does state that the information gathered could allow for small enhancements to the predicted demand and these could have substantial significance for the value chain of a big retailer.

Similar to Carroll (2015: 2), Gonzalez (2015: 5) notes that in order to increase the value of the information gathered from Twitter, it should be combined and analysed with other data. For example, IBM analyses information from Twitter in relation to other touch points such as inventory, market share and sales data (Gonzalez, 2015: 5). This enables IBM to determine the relationship between the external events and their related discussions on Twitter, and the sales performance of the business. According to Woodie (2014), IBM has partnered with Twitter to provide its B2B customers with a selection of services. Gonzalez (2015: 6) further reports that research by IBM found that the data collected from Twitter is essentially more effective for use in the demand forecasting for fashion products. This is because the tool presents a global platform for individuals to discuss trends and events. According to IBM (cited in Gonzalez, 2015: 8), by using responses that fashion bloggers receive from their followers, companies can have a clearer perspective of the '*psychological, cognitive and social traits*' of their target consumers. This information can be fed into the supply chain by enabling manufacturers to determine the reasons for variations in sales for different trends. Such

information can influence merchandising and product innovation strategies (Gonzalez, 2015: 7).

3.6.2. Blogs

Ahuja and Medury (2010: 91) define a corporate blog as an '*online repository serving as a virtual storehouse of information, where organisations post content for consumer consumption*'. Cho and Huh (2010: 30) further elaborate on this definition by adding that corporate blogs are a means for companies to provide a platform for two-way communication to take place between them and the readers of their blogs. While some sources define corporate blogs as means for companies to interact with their consumers, others (Teelen, 2012: 20; Supply Chain Opz, 2014: 2) note that these blogs are an important source for industry stakeholders to become more informed about specific business ideas and innovations. Consistent with Cho and Huh (2010: 30), Supply Chain Opz (2014: 2) identify blogs as platforms for stakeholders to voice opinions on particular topics related to their industries.

3.6.2.1. Supply chain collaboration

Blogs are platforms for industry players to become more knowledgeable and aware of the affairs of their industry in order to respond quickly and proactively to changes in their internal and external environments (Ahuja and Medury, 2010: 92). This study also refers to the fact that blogs can enable collaboration with stakeholders, encouraging participation in discussions and enabling an increase in a company's productivity along with profits, as businesses learn more about supply chain best practices. Casemore (2012: 3) describes this as a '*knowledge network*'.

3.6.2.2. Forecasting

Forecasting is one of the ten operational decisions in the supply chain. Heizer and Render (2011: 136) define forecasting as '*the art and science of predicting future events*'. According to Supply Chain Opz (2014: 2-4), supply chain blogs are a means for stakeholders to become more informed. Information can be presented about new trends currently taking place and those forecasted. Using these industry exchanges, companies may be better informed and equipped to make more accurate forecasts. Heizer and Render (2011: 137) describe three types of forecasts:

- **Economic Forecasts:** These focus on the business cycle and aim to predict potential economic changes such as inflation rates. Two-way discussions on economic forecasts can assist companies in becoming proactive, flexible and responsive to potential changes in the economic environment.
- **Technological Forecasts:** These predict the rates at which technological innovations occur and how this information can be used to stimulate innovation within organisations. Discussions with industry influencers and leaders about technological advancements and best practices, through blogs, can enable supply chains to become updated and aware of new technologies and reduce the uncertainties surrounding the use of these new technologies. Casemore (2012: 5) adds that participants can discuss best practices that worked in their companies and those that did not and share on how their organisations overcame various challenges they were faced with in their supply chains.
- **Demand Forecasts:** Initiating two-way conversations with supply chain stakeholders and customers through blogs is not only important for Customer Relationship Management (CRM) (Ahuja and Medury, 2010: 94) but it can enable companies to become more aware of the responses consumers have to particular products and services. This information is useful for determining future demand.

Although corporate blogs have been viewed as positive methods for generating information to be used in the supply chain, Cox, Martinez, and Quinlan (Cited by Cho and Huh, 2010: 33) warn that blogs, although valuable, may present a threat to an organisation if content that is posted is not managed and used well. Corporate blogs thus need to be controlled (Cho and Huh, 2010: 33), to prevent them from having a negative impact on a company's reputation.

3.6.3. Sourcemap

Literature presented in Chapter Two revealed the importance of end-to-end visibility to the agile supply chain (Christopher, Lowson and Peck, 2004: 370; Harrison and van Hoek, 2011: 13). This can be facilitated through virtual integration, according to the Agile Supply Chain Framework which guided this study (Christopher, Lowson and Peck, 2004: 370). Heaney (2013: 1) explains that supply chain visibility is becoming more valuable to companies with complex and extended global supply chains. The

author adds that improving end-to-end visibility enables such networks to increase their efficiency through decreasing costs associated with a lack of visibility and improving the level of entire value chain's performance. Ackerman (2012: 2) elaborates that supply chain networks have more pressure to ensure that all direct and indirect stakeholders involved in the production and delivery of products are socially and environmentally sustainable. This type of assurance can only be achieved through more visible and transparent value chains. However, while many companies acknowledge that supply chain visibility and transparency is vital, Herrera (2011: 8) notes that '*many companies have realised they don't know much about their own networks beyond their immediate, first-tier suppliers*'. Sourcemap, a type of social networking site for supply chains has surfaced as a platform to address this problem (Herrera, 2011: 1; Ackerman, 2012: 3; Sourcemap, 2015).

Sourcemap was first created by the company's now CEO Leo Bonanni and his students, at the Massachusetts Institute of Technology, as a public platform to enable students to determine the sources and components of products (Herrera, 2011: 3). However, the tool has extended into an organisational mapping tool that facilitates transparency and visibility of stakeholders involved in the entire value chain (Ackerman, 2012: 5; Herrera, 2011: 10-11). Sourcemap provides a means for companies to collect real-time information from suppliers and to report to stakeholders on performance against benchmarks (Bonanni, Hockenberry, Zwarg, Csikszentmihályi and Ishii, 2010: 2). Using the tool, companies can develop a visual drawing of the geographical origins of components and materials sourced to manufacture their products. According to Early (2015: 4), information to create these drawings can be sourced from the purchasing department. This gives an insight into the types of materials used, the geographical locations of suppliers involved in multi-tiered networks and the various modes of transport used throughout the process (Bonanni *et al.*, 2010: 2). According to Herrera (2011: 3), the tool has had a valuable impact on the decisions made in relation to sustainability. In addition, using Sourcemap, companies can make some of the information about the sources of their products visual to the public. Stakeholders, such as customers can become better informed and more trusting of the companies they purchase products from (Ackerman, 2012: 5).

3.6.3.1. Supply chain network optimisation

According to Gibson (2011: 42), Supply Chain Network Optimisation (SCNO) involves the identification of inbound and outbound material movements through the supply chain. It also focuses on the assessment of the related costs and restrictions, in order to determine the most cost-effective resolutions to these restrictions. Sourcemap enables companies to optimise their networks through determining lead times and risks and identifying the related costs incurred throughout the supply chain. Using Sourcemap, supply chains can also determine their critical paths. Heizer and Render (2011: 95) describe a critical path as '*the longest time path through a network*'. Better strategic decisions about network models can be made as the platform enables companies to have a virtual presentation of the feasibility of various network designs. This allows companies to choose the best model suitable for their supply chains (Sourcemap, 2015).

3.6.3.2. Supply chain risk identification and alerts

In a similar way to Twitter, Sourcemap provides a platform for companies to identify the threats that they are exposed to as a result of having complex networks (Bolgar 2013: 13; Early, 2015: 6). However, while companies using Twitter may need to sift through unrelated Tweets or search for information about disruptions, Sourcemap sends immediate notifications and alerts to the dashboards of companies providing a more personalised service for each company's supply chain network (Sourcemap, 2015). Companies are able to have real-time information-sharing about the threats or disruptive events that their suppliers are exposed to. The tool gives insight into the types of supplier risks that may result in ripple effect bottlenecks (Bolgar, 2013: 13). The speedy notifications provide companies with a means to increase their responsiveness to threats as a result of the improved visibility enabled by Sourcemap. Furthermore, the tool allows companies to determine the types of risks they may be exposed to from making various tactical and strategic decisions that involve their suppliers. Using performance metrics Sourcemap also enables focal companies to determine the under-performing suppliers in their value chains (Sourcemap, 2015).

3.6.3.3. Supplier social network

Visibility and transparency is also enabled through Sourcemap's supplier social network capability (Lee, 2014: 4; Weaver, 2015: 12). The tool facilitates network integration through features that enable companies to request that their suppliers

provide them with documentation about quality measures and compliance reports (Sourcemap, 2015).

3.6.4. TMC Connect

Changes in the global environment, such as the development of lean and agile practices, rapid technological improvements, globalisation and competition, have complicated the transportation element of logistics (C.H. Robinson, 2010: 1). These complications have led stakeholders in the supply chain industry to seek ways to reduce the complexity of conducting business in the global environment. C.H. Robinson is a large international third party logistics operator (C.H. Robinson, 2010: 2), which has 235 offices, situated in 22 countries (Armstrong, 2010: 2). The company continues to grow having had a gross-revenue of US\$7.6 billion in the year 2009 (Armstrong, 2010: 2) which increased to US\$12.8 billion in 2013 (C.H. Robinson, 2014: 7). In order to manage its wide portfolio, C.H. Robinson established a division within its company called TMC and, in the 1990s, the company developed a concept called 'Managed TMS' through this division. TMS stands for 'Transportation Management Systems' (Armstrong, 2010: 2). Through the services of the Managed TMS, shippers are provided with knowledge and technology required to facilitate cost reductions and sustainability throughout the transportation network. The Managed TMS utilises '*Six Sigma-based process engineering, advanced TMS technology and onsite TMS power-users*'. The company claims that TMC has managed to reduce the carbon footprint of clients and assist clients in increasing their cost savings, improving the functions of their supply chains and their rates of productivity (Armstrong, 2010: 2; My TMC, 2014: 1).

The development of the social media tool, TMC Connect, according to C.H. Robinson (2010: 1) has provided the supply chain industry with answers to the complexities of global transportation. TMC Connect was developed by the TMC division in 2009 (C.H. Robinson, 2010: 2). Using TMC Connect, the clients of the TMC division are provided with a private site to interact with companies facing similar complex transportation networks. Users are provided with information related to new technologies, shipping legislation and other best practices of the industry (C.H. Robinson, 2010: 4). The executive Director of TMC, Jordan Kass explained that TMC Connect provides a real-time platform for globally dispersed stakeholders to converse about various issues, for

example, sustainable practices and the efficient management of energy resources which affect their processes (C.H. Robinson, 2010: 3).

Similar to blogs, TMC Connect is viewed by its users as a means to become more informed about changes in their external environments. Users of TMC Connect have noted that it allows them to become more proactive and informed on the best practices of the industry through conversations with companies facing similar transport complexities (C.H. Robinson, 2010: 5). Due to the fact that the social media tool is private, users are provided with a secure means of improving their knowledge of the industry. The tool is not only used by its users to expand their knowledge, but users have found it a platform to network with other companies, from a variety of industries.

While TMC Connect provides TMC and its clients with many benefits, Gonzalez (2010: 7) notes that it would take some time before clients are completely comfortable utilising all the platform's features. However, Gonzalez (2010: 7) also makes reference to the fact that the 'hands-on' approach TMC has used, in order to encourage the use of TMC Connect, will immensely benefit the adoption of the social media tool.

3.6.5. Freight Friend

Relationships in the supply chain are very important, however, they are significantly more important in the transportation industry (Gonzalez, 2011: 1; Ehgoetz, 2013: 1). Gonzalez (2011: 1) makes reference to the importance of the transport industry to maintaining the reputation of company brands. This is due to the fact that companies trust transport businesses to deliver their products in the right condition, to the right customers, at the right place and time. Relationships with transport companies are also important due to the continuous changes that occur in the industry. According to Ehgoetz (2013: 3), seemingly simple changes such as hikes in fuel prices can put pressure on the relationships shippers have with carriers. Forming strong relationships with transport companies is therefore an important element of many businesses. In addition, Ehgoetz (2013: 1) notes that due to the increased competition in the transport industry, transport companies need to formulate relationships with their clients in order to maintain their loyalty.

MercuryGate has developed Transport Management Systems (TMS) for shippers and logistics providers. In 2011, MercuryGate established a new social media tool called

FreightFriend (MercuryGate, 2011). FreightFriend was developed by Noam Frankel, one of the founders of American Backhaulers in partnership with MercuryGate. The social media tool provides a platform for carriers, shippers and brokers to interact in a secure and private network. Using FreightFriend, shippers and brokers are able to communicate to the carriers the loads they need to be carried. The posts of these loads can only be visibly seen by the carriers that have already been approved by the shippers and brokers (Ehgoetz, 2011: 2). In addition, carriers are also able to post the capacity they have available for particular routes, allowing only their trusted shippers and brokers to see these posts (Ehgoetz, 2011: 2). While traditional, public means of advertising tenders may present risks for some companies, a private platform allows for the reduction of such risks (MercuryGate, 2011). Another benefit of FreightFriend is that it allows shippers and brokers to find the most cost effective carriers within their networks.

While FreightFriend may appear to be similar to traditional load boards on the internet, it differs in that it shares characteristics with Twitter and Facebook (Gonzalez, 2011: 8). FreightFriend added the critical element of privacy to its site. The tool is similar to Twitter and Facebook in that no updates or posts appear on the user's timeline unless they 'friend' or link with a particular company's FreightFriend account (Gonzalez, 2011: 8). While Freight Friend connects users, it does not take the place of a TMS. After linking shippers, brokers and carriers, a TMS will be necessary for the maintenance of the next phases of the process.

3.6.6. Yammer

Yammer is an organisational social media platform that supports the virtual functional and cross-functional integration and information-sharing of employees (Yammer, 2015). According to Chacos (2012: 3), Yammer can be extended to an organisation's external stakeholders, with companies provided with a function that enables them to create separate networks that include their suppliers or their customers. In 2012, the tool was purchased for US\$1.2 billion (Chacos, 2012: 1) by Microsoft, from its founder, David Sacks (Miller, 2013) and in excess of 200 000 organisations are currently using the tool for functional and cross-functional collaboration and integration (Yammer, 2015). According to Miller (2013), at least 100 000 of Microsoft's suppliers and employees had opened Yammer accounts by 2013. Of these people, 34 000 were

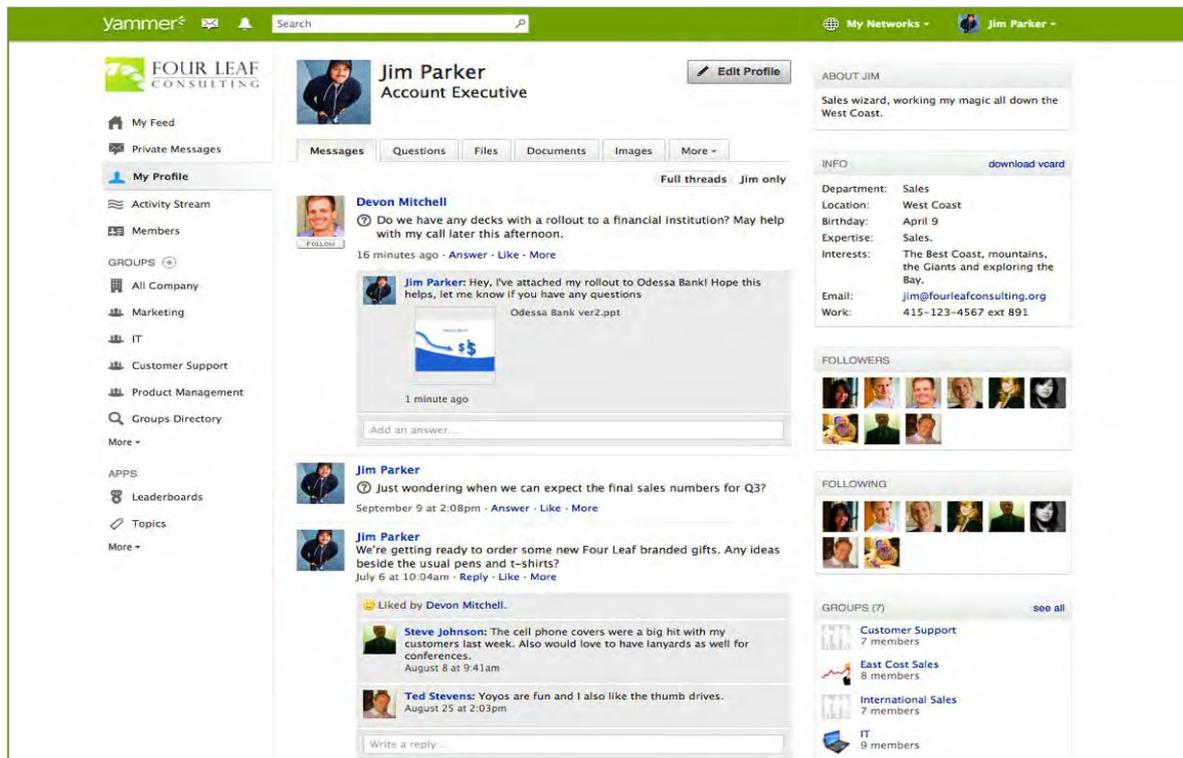
recorded to have been using the social media tool each month. Deloitte also utilises Yammer to communicate with over 14 000 of its employees globally (Deloitte, 2010: 5). While accessible on desktop computers and laptops, the application is also available on operating system platforms such as Apple iOs, Android and Windows, thus allowing users to access conversations and distribute information across all mobile devices (Yammer, 2015).

Similar to other networking sites which allow users to create profiles, Blair (2011: 3) adds that Yammer enables users to form such profiles using their functional work email addresses. This is a pre-requisite for joining an organisation's Yammer domain (Chacos, 2012: 4) and can thus serve as the application's initial security function.

3.6.6.1. User-interface

Figure 3.2 represents Yammer's user-interface, which Deloitte (2010: 5) describes as having similar characteristics to Twitter and Facebook. Chacos (2012: 4) adds that Yammer enables its users to send private messages, upload and download documents, images and videos, along with writing and reading posts which can all be shared on the user's newsfeed. These posts are accessible to the user's network. The application also enables users to create groups (Yammer, 2015). These can be created based on the functions available in the organisation or based on temporary projects or cross-functional teams that the user is involved in (Blair, 2011: 12; Yammer, 2015). Users are able to search for and contact relevant employees within their organisations with a contact directory which includes the basic details of all employees on the organisation's Yammer domain, such as company position and skills (Chacos, 2012: 4).

Figure 3.2: Yammer User-Interface



Source: (Gatehouse, 2013: 7)

3.6.6.2. Internal integration

Virtual integration and end-to-end visibility are identified as important to the agile supply chain. Power, Sohal, and Rahman (2001: 249) add that these elements can be provided in real-time using modern information technology. Microsoft and Deloitte have enabled internal integration in their organisations using Yammer. After purchasing Yammer, Microsoft proceeded to encourage its employees to make use of the technology in order to improve operations and visibility within the organisation (Miller, 2013). The company has chosen to use Yammer as an alternative to emails. Microsoft employees are able to share documents and collaborate more strategically and efficiently using the tool (Miller, 2013). In addition, through this platform, Deloitte's employees have found an open and quick platform to communicate ideas and share content. This has allowed better internal integration, innovation, responsiveness and transparency amongst employees (Deloitte, 2010: 5). An IT employee of Microsoft, Chris Slep predicts that the tool will be responsible for enabling the greatest organisational cultural change, as employees will shift towards using social tools like Yammer for their daily job tasks (Miller, 2013).

Yammer enabled front-line employees to directly receive feedback from top management about various issues in the organisation. Feedback is an operational component of job design that is necessary to give employees comprehensible and timely response on performance and other issues (Heizer and Render, 2011: 419). This was done to improve communication and reduce turnover of staff members, thus also improving transparency, innovation, responsiveness and visibility within the organisation. The management of the American restaurant chain Red Robin was also attracted to the social media tool's ability to encourage two-way communication in a private social environment that can be controlled (Lavenda, 2014: 3). Miller (2013) notes this element as a good feature of this social medium, which enables companies to prevent any unprofessional behaviour and abuse of the site by employees and maintain the intended productivity expected from the use of the technology and the professionalism required in the work environment.

As a result of using Yammer, combined with incentives to encourage employees, Red Robin was able to respond in four weeks to customer complaints identified by staff members, about the Tavern Burger, a new item on their menu (Lavenda, 2014: 10). The tweaking of a recipe is a process that managers acknowledged generally took six to twelve months but due to conversations about the issue being followed up by management as they occurred, the company was able to become more agile through responding quickly to the demands and needs of customers. This enabled them to maintain the quality of products delivered to customers (Lavenda, 2014: 11).

While many articles (Lavenda, 2014; Miller, 2013 and Strom, 2011) have shown the positive side of utilising Yammer to improve communication and collaboration in internal operations and in the supply chain, others such as Lacy (2012: 1) and Wainwright (2014) note that the tool is still far off in terms of providing companies with the best reliable service possible. Lacy (2012: 1) argues that although the tool is popular, it has many areas in which it can be improved. According to Lacy (2012: 10), the weaknesses of the tool lie in its features which are not user-friendly and are riddled with inefficiencies that have, in the past, crashed and affected the entire processes and operations of the companies that relied on the tool for both internal and external communication. Wainwright (2014: 14) further argues that the true potential of the technology cannot be fully realised because the networks of users are still limited, with

many employees and organisations still reluctant to use the tool. For example, the rate of Yammer's adoption by Microsoft's employees was slow, as the organisation encountered some resistance to its use. Microsoft has thus had to make internal changes to encourage employees to make use of Yammer and utilise it in their daily operations (Miller, 2013).

3.6.7. Social Enterprise Resource Planning

According to Moon (2007: 235), an ERP system is *'an enterprise information system designed to integrate and optimise the business processes and transactions in a corporation'*. A large number of companies make use of this type of information-sharing tool to integrate and coordinate the individual functions in their organisations into a centralised system which is accessible throughout the company (Seo, 2013: 9). ERP systems have had historical benefits for companies looking to improve their organisational efficiencies through facilitating better internal communication and the integration and coordination of business processes and best practices (Seo, 2013: 9; Heizer and Render, 2011: 597). According to Heizer and Render (2011: 598), an ERP system combines Material Resource Planning (MRP) software, Customer Relationship Management (CRM) software, Supply chain management (SCM) software and integrates this with information from the finance and accounting department along with the human resources department. ERP systems therefore enable both virtual and process integration in organisations. These are two components of an agile system that were identified in The Agile Supply Chain Framework (Christopher, Lowson and Peck, 2004: 370).

ERP systems, such as SAP and Oracle (Kimberling, 2011: 1), are highly structured and largely inflexible. ERP vendors have thus begun to search for ways to improve the quality of information shared through these systems. Although many companies use social media to communicate with their consumers, few actually know how to efficiently use the information captured through such interactions (Weiss, 2011: 3). Developments are thus moving towards integrating ERP software with social media capabilities to construct a more market-sensitive and agile system that effectively captures, sorts and communicates the unstructured information gathered from the conversations that companies have with their customers on social media platforms (Weiss, 2011). According to Kimberling (2011: 1), terms such as Enterprise 2.0 and

Social Enterprise Resource Planning are now being used to refer to this development. ERP suppliers such as Oracle, IBM and Salesforce.com have extended their service offerings to include Social ERP systems (Violino, 2013: 1).

3.6.7.1. Benefits of Social ERP systems

There have been many benefits predicted from the combination of ERP and social media tools such as Twitter and Yammer. Kimberling (2011: 2) and Weiss (2011: 6) add that organisations may provide a more conducive working environment for a future generation of younger members of staff who will be better skilled at using unstructured social media tools and less familiar with the structured, more controlled nature of ERP systems. In addition, organisations that are able to sort and analyse relevant discussions that customers have are able to provide better services and products that are more suitable to the needs of customers (Violino, 2013: 1). They are also put in a better position to have a clearer insight into the behaviours of their target markets (Violino, 2013: 1).

Furthermore, incorporating social media capabilities into ERP systems enables organisations to be more responsive and flexible during disruptions (Violino, 2013: 1). While tools such as Twitter can help in quickly identifying disruptions (Brownstone, 2013; Gonzalez, 2015), Violino (2013: 1) notes that the Social ERP can enable the distribution and easy communication of detailed and useful information about the identified supply chain disruptive events to the relevant stakeholders responsible for the management of the disruption.

3.6.7.2. Implementation of Social ERP system

In order to better align the capabilities of the structured ERP system and the unstructured social media, Kimberling (2011: 1) suggests focusing on four strategies:

- Organisations can increase the flexibility and responsiveness of ERP systems, while also increasing the structural controls of social media. This can be done by ensuring that employees are aware of what type of information to share on the more unstructured social media and building policies to govern the types of interactions that take place on these platforms.
- In order to benefit more from a Social ERP system, organisations can focus on leveraging the strengths of both the standardised ERP and the more flexible social media. This author notes that management should determine which

elements of each tool would best suit their organisations and use this information to tailor the social ERP to their values and organisational needs.

- For the effective implementation of a Social ERP system, it is recommended that organisations develop a blueprint which states which types of processes should remain standardised and which can be more flexible. The blueprint can further communicate the roles of employees and how performance will be measured on this new system.
- Kimberling (2011: 1) concludes by mentioning the importance of change management and cultural values conducive and suitable for the successful implementation of such a new system. While the alignment of ERP systems and social media may benefit some employees who are familiar with social media in their personal lives, organisations should cater for the training of those employees who have more knowledge and experience with structured ERP systems.

As an example for the use of social ERP systems, Violino (2013: 2) reports on Nebraska Book Co., a company that resells used textbooks. In order to facilitate and improve the integration of sales staff, the company implemented a social ERP system. While Nebraska Book Co. benefited greatly from using cloud-based Social ERP systems, staff members who had worked for Nebraska Book Co., for many years, were unable to clearly understand the advantages of using the ERP system with new social media applications (Violino, 2013: 2). With management support and a strong emphasis on the need to implement the tool, the Social ERP system was slowly introduced. However, while the focus seems to mostly be on the possible resistance of staff members who have worked with the traditional ERP system, Kimberling (2011: 2) suggests a more balanced perspective. A further suggestion is given by Kimberling (2011: 2) for the training of staff members who are more familiar with unstructured social media tools, in order to ensure that they too can adapt to the structured nature of the ERP system.

3.6.8. Kinaxis Supply Chain Planning Software

Virtual integration connects supply chain stakeholders through the collaboration and exchange of real-time information (Power, Sohal, and Rahman, 2001: 249). As a result of outsourcing, numbers of supply chain partners have increased and value chains are

more exposed to risks and uncertainties (Supply Chains Risk Leadership Council, 2011: 2). Risk Management through collaborative planning, end-to-end visibility and information-sharing is thus necessary (Handfield, 2007: 39).

SCP conventional tools have a spreadsheet interface that is largely designed for use by individuals and thus do not have any collaborative or integrative features (Computer Economics, 2014: 3). While these tools have historically provided many advantages for recognising risks and documenting the resolutions to these disruptions, Computer Economics (2014: 5) argues that SCP problems arise when actions that have repercussions on other stakeholders occur. During these exception events, collaboration with stakeholders is necessary and some decisions may require their immediate approval. Traditionally, supply chain planners would be required to communicate with stakeholders using telephones, meetings or emails. However, these have their limitations. Social media are increasingly being seen as better means of communicating and integrating with large groups of individuals, during SCP, as a result of their ability to broadcast information to a greater number of people in different geographical locations, at once (O'Leary, 2011: 123). According to O' Leary (2011: 123), social media features enable users to generate information and choose which stakeholders of the supply chain should have access to it, facilitating privacy and security of vital data and reducing spam.

Kinaxis is a Canadian company which produces Supply Chain Planning (SCP) software. It has developed new social media user interfaces to allow for cross-functional integration by enabling planners to automatically select internal and external stakeholders who would immediately be affected by the SCP decisions (Computer Economics, 2014: 9). The tools further capture the decisions from each of the participants and allow all users to see how each proposed resolution will affect the organisation and the relevant supply chain stakeholders involved (Computer Economics, 2014: 11). Automatic updates on desktops and other smart devices make the decisions easily accessible (Computer Economics, 2014: 11).

Table 3.1 summarises the applications of the technologies discussed in this section of the chapter to the agile supply chain. It also includes other social media tools that were identified as used for marketing purposes and represents their implications to the agile supply chain.

Table 3.1: Summary of potential applications of social media in the agile supply chain

Virtual Integration	Market Sensitivity	Process Integration	Network Based
<ul style="list-style-type: none"> • Fast identification and communication of risks. • Responsiveness • Easier SCP. • Tracking of shipments. • End-to-end visibility. • Increased Supply Chain Risk Management. • Collaborative planning. <p><i>Kinaxis, Twitter, Source Map</i></p>	<ul style="list-style-type: none"> • Two-way conversations with customers. • Monitoring of user-generated information. • Speed-to-market. • Better prediction and capturing of emerging trends. • Responsiveness to the needs of customers and other stakeholders. • Better product assortment • Improved demand forecasting <p><i>Twitter, Facebook, Blogs, Youtube, Instagram, Pinterest.</i></p>	<ul style="list-style-type: none"> • Seamless integration of processes • Useful during product design. • Encourages innovation. • Cross-functional integration. • Collaborative design. • Transparency. • Visibility of processes. <p><i>Yammer, Source Map, Social Enterprise Resource Planning, Freight Friend.</i></p>	<ul style="list-style-type: none"> • Discussions of best practices with stakeholders. • SRM • Improved performance of stakeholders. <p><i>TMC Connect, Yammer, Source Map, Blogs.</i></p>

Source: (Compiled by the Researcher, 2015)

3.7. Rogers’ diffusion of innovation theory

The differences in perspectives shown by literature acknowledges that there is a division in the supply chain with some companies open to early adoption while others, on the other end of the spectrum, prefer to use a ‘wait and see’ approach. The slow adoption of social media in the supply chain can be understood using Rogers’ theory of diffusion of innovation. According to Robinson (2009: 1), this theory seeks to explain why various groups of populations respond in the manner they do to innovations. An innovation in this context was defined as ‘*an idea, behaviour, or object that is perceived as new by its audience*’ (Robinson, 2009: 1). Social media can thus be viewed as innovations in the supply chain industry, as they are perceived by stakeholders as relatively new technologies.

The diffusion of innovation theory seeks also to explain why some innovations may be easily adopted compared with others. This may help innovators understand the reasons behind the slow adoption or fast adoption of their innovations (Robinson, 2009: 1). This could help explain why ERP systems have been more readily adopted in the supply

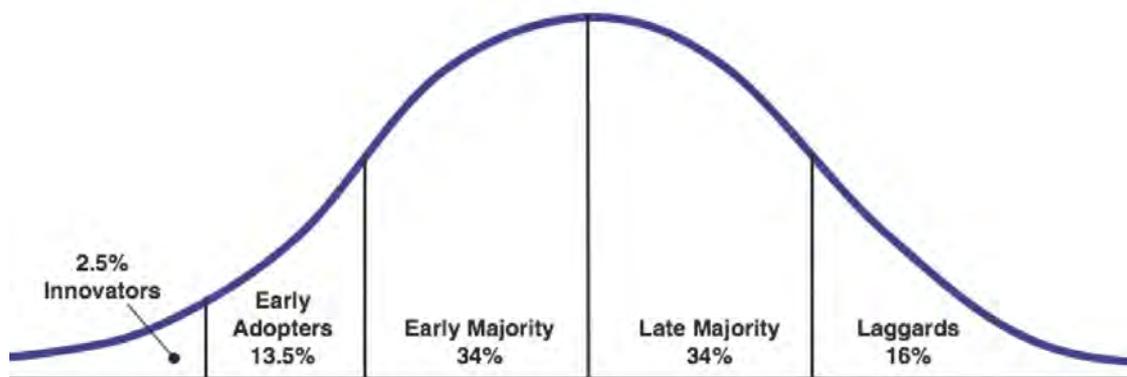
chain industry, as a means for collecting and dispersing information, when compared with the focus of this study, social media.

The diffusion of innovation theory is divided into two parts. The innovation model explains and describes the various categories of adopters. The next part, called the attributes of adoption explains the different characteristics of innovations that affect the rate of adoption. These two areas will be explored in detail with reference to social media adoption in the supply chain.

3.7.1. Rogers' innovation model

The first part of Roger's theory is focused on the innovation model. According to Rogers (1971: 248), there are five adopter categories in the innovation curve, namely; innovators, early adopters, early majority, late majority and laggards. **Figure 3.3** illustrates these different categories. Rogers (1971: 248) stated that these adopter categories can be used to show the general percentage of users for each phase of an innovation's lifecycle.

Figure 3.3: Technology Adoption Life Cycle



Source: (Stacey, 2010)

3.7.1.1. Innovators

Innovators are the smallest group of adopters. According to Robinson (2009: 6), Rogers estimated that this group holds only 2.5% of the entire population of users of any innovation. These innovators can be seen as individuals or companies that embrace new ideas. Innovators are risk takers and are open to the potential for both failure and success (Sahin, 2006: 19).

3.7.1.2. Early Adopters

13.5% of the population of users consists of early adopters (Robinson, 2009: 4). According to Rogers (1971: 249), early adopters are usually industry leaders and those of influence that others come to for advice on innovations. The opinions of these early adopters are seen as more valuable to the industry. Companies such as Deloitte and Home Depot have taken this position and have provided their insight on the potential social media have in the supply chain. Miller (2013) explains that Microsoft, as the owner of Yammer, has also taken the initiative to identify key influencers, also known as Yammer ‘Champions’ currently using the tool in the company. The company has proceeded to document and distribute the success stories of those key influencers regarding the Yammer technology. This has been done to encourage other people in the company to use Yammer and to identify the value the social media tool has to improving the organisation.

3.7.1.3. Early Majority

The early majority hold 34% of the population of adopters. They do not have leadership roles as do the early adopters. However, their opinions and responses to innovations are still valuable as they are the first of the majority to adopt the innovations (Sahin, 2006: 20). Rogers (1971: 249) further described this group as one that requires a longer period of time to make a verdict about whether to adopt various innovations or not. Elsherif (2011: 21) explains that the group does not adopt any innovations unless they have been proved to be useful.

3.7.1.4. Late majority

The late majority represent industry players that wait for many others to adopt a particular innovation before adopting it themselves. Elsherif (2011: 21) describes this group as risk averse and largely influenced. The late majority is usually pressured by their peers although they remain uncertain of the innovation. Similar to the early majority, they represent 34% of the population of adopters (Sahin, 2006: 20).

3.7.1.5. Laggards

Rogers (1971: 250) referred to laggards as those industry players that are highly sceptical and are not viewed as industry leaders. According to the theory, laggards are those that have very localised systems and are not open to innovations due to a lack of

knowledge or even resources. Orr (2003: 9) further describes this group as highly traditional, with very limited exposure to new innovations.

3.7. 2. Attributes of adoption

Robinson (2009: 1) identifies five areas of Rogers' theory that determine the adoption of an innovation. These are relative advantage, compatibility with existing values and practices, simplicity and ease of use, trialability and observable results. These areas will be discussed in more detail with reference to the current obstacles of implementing social media in the supply chain.

3.7.2.1. Relative advantage

Relative advantage is the perceived benefit that a specific innovation can potentially give its users (Robinson, 2009: 1). The more benefits an innovation can provide its target market the earlier and faster it will be adopted. As noted in previous sections, supply chain stakeholders are still uncertain of the benefits social media can offer. This has presented an obstacle to implementing the technology.

Gonzalez (2013: 1-6) compares the current slow adoption of social media in the supply chain to that of the internet in 1996. During this period, moving towards the widespread use of the internet and emails, companies were uncertain how the internet would benefit their processes and productivity. The uncertainty led to the banning of the internet during office hours with few officials allowed access to the internet (Gonzalez, 2013: 1). This was all done to preserve the productivity of companies. However, it is now clear that the internet provided better means for industries to become more productive (Gonzalez, 2013: 1-6). The study by Gonzalez (2013: 9) explains that the cautiousness currently practised by many companies regarding the use of social media is so great that many companies have blocked their use during working hours. Due to this uncertainty, there is visible hesitation towards adopting the technology. The comparison between the internet's adoption in businesses and the current slow adoption of social media, serves to show that failure for target markets to identify the relative advantage of using a specific innovation, no matter how beneficial it may actually be, may lead to a slow adoption rate.

3.7.2.2. Compatibility with existing values and practices

The rapid adoption of an innovation is also dependent on the innovation's ability to meet the current values and practices of its potential users (Robinson, 2009: 1). Social media have mostly been branded as a means for people to socialise on a personal level. From a marketing perspective, they provide a way for marketers to understand target audiences' behaviours and attitudes in a more social and relaxed environment, outside the strictness of corporate, work environments. This branding of social media has made them appear incompatible with the needs of more structured supply chains. Gonzalez (2013: 13) refers to the fact that the word 'social' in social media has made companies unsure of how much the tools can actually contribute to the traditional supply chain on a more corporate platform. During a workshop conducted by Gonzalez (2013: 12), an executive was reported to have said, '*We come to work to get things done, not to socialise*'. Similarly, Sauder (2013: 1) makes reference to the fact that some CEOs have viewed the social aspect of social media as '*counter-productive*'. This reveals that some companies are unable to look past the social characteristic of social media.

Gonzalez (2013) notes that the current systems of many supply chains are not conducive for experimenting with social media, making social media appear as incompatible with the industry's values and needs. The fact that very few policies and governance structures have been put in place to monitor the use of social media also contributes to the lack of adoption as issues of privacy and security arise.

3.7.2.3. Simplicity and ease of use

According to Robinson (2009: 1), an innovation that is considered easy to use and understand is more readily adopted. The simplicity and ease of use of social media may be dependent on a number of elements including demographics of staff members, specifically age (Popescu, 2013: 6). It is largely believed that the older a person is, the less receptive they are to new innovations. In addition, social media have been widely used by younger generations, making it considered a tool for younger people rather than for all generations to make use of. Popescu (2013: 6) notes that 83 % of young people between the ages of 18-29 are more likely to be open to using social media compared to only 52% between the ages of 50-64. Incorporating social media in an industry filled with employees of different age groups may provide some challenges.

According to Popescu (2013: 6), issues of educational background also affect perceptions of how simple and easy the technology is to use. A substantial proportion of South Africa's workforce is not educated (Upfold and Liu, 2010: 93). In addition, the lack of skilled employees in South Africa increases the costs required for companies in the country to switch to seemingly more complex new technologies, as staff members have to go through a series of training sessions before the innovations can be fully implemented (Upfold and Liu, 2010:93). Similarly, Gonzalez (2013: 13) notes that many employees in companies are not experienced when it comes to using social media. This affects the simplicity and ease of use and has a negative impact on the rate of adoption. It thus limits the openness to social media in the supply chain.

3.7.2.4. Trialability

Robinson (2009: 2) defines this as '*the degree to which an innovation can be experimented with on a limited basis*'. Through trying various innovations, early adopters are able to note any flaws that may be present, allowing for the invention to be improved. While social media have been used by the marketing industry, their trialability for the supply chain can be determined by early adopters such as Deloitte. However, Gonzalez (2013: 13) views the fact that not all external partners are currently willing to use social media within their operations as a limitation on the trial process. The full capabilities of the tools of social media cannot be trialled, if all partners are not in full cooperation. The trialability of social media is also affected by the lack of support from top management. This is so because the attitudes of top management generally determine the organisation's rate of adoption of new technologies.

3.7.2.5. Observable results

Rogers (1971: 232) defined observable results as '*the degree to which the results of an innovation are visible to others*'. According to Zeng, Chen, Lusch, and Li (2010: 3), supply chains have failed to make use of social media due to their inability to understand and see the potential the media has in terms of return on investment. While it is not often possible to accurately forecast the ROI of social media using the traditional methods of forecasting, Zeng *et al.* (2010: 3) note that the use of estimates may be a worthwhile option, rather than dismissing the technology altogether. However, although there are possible alternatives for measuring ROI, the inability to

directly see the ROI of social media still remains an area that many industry players perceive as the deal breaker and slow adoption has been the result.

Similarly, Gonzalez (2013: 13) notes that another big obstacle is the inability to quantify the actual value that utilising social media technology will have to improving business processes. Many companies are not currently able to determine how productive they will be as a result of using social media, nor are they able to determine how much would be saved from using social media.

3.8. Conclusion

To conclude, social media are growing in popularity. Their usage in the South African market has shown this growth. As a result, companies have started using various social media platforms to engage with their consumers. However, while the marketing departments for many organisations have implemented social media, the applications are not widely used in the supply chain. Various tools have surfaced as potentially beneficial to the supply chain. Many of these platforms facilitate information-sharing amongst stakeholders. Through these collaborative platforms, companies have benefitted from increased responsiveness and market sensitivity. In addition, using these tools, supply chain stakeholders have also increased their end-to-end visibility and risk management. However, while the benefits have been discussed, using Roger's diffusion of innovations theory, it was discovered that there are various reasons that may contribute to the low adoption rate of social media applications in the supply chain.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1. Introduction

The Research Methodology Chapter presents an outline of the manner in which data was collected and analysed by the researcher. This chapter provides an overview of the theory and concepts relating to the methods of conducting a research. It further gives an outline of how the researcher applied these concepts and theories to the data collection and analysis required to address the objectives of the study and ultimately the research problem.

The objectives and theoretical framework of the study were used to guide the research process. The research methods were therefore selected according to their ability to meet these objectives and collect relevant data to address the research problem.

This chapter will thus provide detailed information about the purpose, objectives, research design, research paradigm, sampling strategies and the instruments used to collect data. Furthermore, the chapter gives an account of the analysis of these data, provisions made to ensure the reliability and validity of the research process and efforts made to maintain the ethics of the entire research procedure. Finally, this chapter will describe the limitations of the study and research process.

4.2. Purpose

The competitiveness and volatility of the fashion industry have led to the implementation of agile practices in order to increase speed-to-market and to meet the needs of customers (Harrison and van Hoek, 2011: 237; Bhatia and Asai, 2007; Christopher, Lawson and Peck, 2004: 371). Popular international retailers, like Zara have become synonymous with the term ‘agile’ (Bhatia and Asai, 2007: 3). While South African fashion retailers have identified the value of agility (Tukker, 2013: 1), their implementation of this concept continues to grow within their supply chains, but is yet to reach the competitiveness of their first world counterparts.

With social media gaining attention as information-sharing tools for communication with both internal and external stakeholders, this study focused on determining if South

African fashion retailers could potentially adopt the various media available for the supply chain. This was done through identifying the various methods and technologies currently used for internal and external integration and visibility. It further aimed to deduce, from these the level of technological innovation within the organisation, along with the perceived gaps or areas of improvement necessary for agility to be realised.

The study was also designed to give insight into whether social media are currently being used in South African fashion industry supply chains and the extent to which this is done. It was also designed to reveal the attitudes of management towards social media application in the supply chain. All this information allowed the researcher to determine the extent to which opportunities exist for the adoption of social media within South African fashion industry supply chains.

While information on the implementation of social media in the supply chain continues to increase, few academic sources have written on the topic. No studies, known to the researcher, were identified that focused on social media improving supply chain agility in the South African context. This study therefore, was designed to provide a stepping stone for future studies to be conducted on the subject. It was also designed to provide South African fashion industry supply chain stakeholders with information on this new application of social media, in the business context, which could potentially improve the performance of their agile supply chains.

4.3. Research objectives

In order to determine the appropriate research design suitable for this study, the researcher was guided by the following research objectives which were formulated using the Agile Supply Chain Framework:

- To assess the industry's current sensitivity and responsiveness to market changes.
- To identify the level of virtual integration of stakeholders in the South African fashion supply chain.
- To evaluate the extent to which existing technologies, used in the South African fashion industry, facilitate process integration.

- To recognise how efficiently strategic relationships are presently coordinated in the complex fashion supply chain in South Africa.
- To assess whether there is a perceived need to improve agility of South African fashion industry supply chains.
- To deduce from the findings of an empirical study if there are opportunities for the adoption of social media in South African fashion industry supply chains.

4.4. Research design

Terre Blanche and Durrheim (1999: 29) define a research design as '*a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research*'. According to Sekaran and Bougie (2010: 102), a research design refers to all the decisions made relating to the purpose of conducting a study and the geographical site or area in which the study will take place. It also refers to the level of involvement of the researcher in the manipulation and controlling of the environment in which the research will be conducted. Sekaran and Bougie (2010: 102) also refer to target population identification and description, sampling decisions, the methods of collecting data and data analysis as other components of the research design. These decisions are made after the development of a research problem and the identification of a suitable theoretical framework and research objectives, which all guide the researcher in deciding which research design is suitable for the study (Terre Blanche and Durrheim, 1999: 29). Similarly, the University of KwaZulu-Natal (2014: 5) further make reference to the fact that the research problem dictates the type of research design suitable for a study. The research design allows the researcher to provide a solution to the research problem.

Ten types of research designs were identified by the University of KwaZulu-Natal (2014: 5). These are cross-sectional, action research, case study, causal, cohort, descriptive, experimental, historical, longitudinal and sequential. Due to there being limited existing literature on the subject, this study's research design took the form of an exploratory case study with qualitative attributes.

Case study research involves the examination and investigation of a '*limited number of units*' (Welman, Kruger and Mitchell, 2005: 193). According to these authors case study research is generally limited to analysing the dynamics of one unit, which could

be an individual, community or firm. This research design was chosen because it allowed for an in-depth and intensive study of the unit investigated. It further enabled the researcher to identify the unique and complex aspects of the unit and to use this detailed understanding of the organisation to address the research problem (Welman, Kruger and Mitchell, 2005: 193). This particular study focused on an individual retail organisation which plays a significant and competitive role in the South African fashion industry.

4.5. Research approaches/ paradigms

The University of KwaZulu-Natal (2014: 5) defines research approaches or research paradigms as '*broad methods of inquiry or investigation*'. These research paradigms are divided into three categories which include qualitative, quantitative and mixed methods. Each of these three categories may be applied to case study research designs (Welman, Kruger and Mitchell, 2005: 6).

According to Maxwell (2012: 29), the different research approaches have various benefits and disadvantages. As a result, the purpose and objectives of a study are what guide a researcher into determining the type of research paradigm to select for the study. According to Creswell (2003: 18), the quantitative method is scientific rather than subjective. In order to conduct research using this approach, researchers may choose to conduct experiments or surveys, so as to have statistical deductions. Maxwell (2012: 29) adds that this quantitative research approach is therefore suitable for revealing a '*statistical relationship between different variables*'. The quantitative approach is opposed by the qualitative approach, which is sometimes referred to as the *anti-positivist* approach (Welman, Kruger and Mitchell, 2005: 6). The qualitative approach analyses the opinions of participants in connection with the social environments and the internal and external events that impact these (Maxwell, 2012: 29). Examples of qualitative strategies include case studies and grounded theory studies (Creswell, 2003: 18).

While the benefits of using social media in the supply chain are slowly being revealed by literature, the opportunities for adoption of such technologies are still largely dependent on the subjective opinions and support of management. These opinions may be drawn from personal experience or knowledge of the implementation of social media

in business. Due to the acknowledgement of the possible presence of such subjectivity, the study made use of qualitative methods of collecting data in order to identify and capture the views of management, for a more realistic perspective of the South African environment to be derived. According to Tewksbury (2009: 39), the qualitative approach has a strong focus on the contextual value of responses and is thus described as capable of bearing rich and in-depth findings.

Qualitative approaches of collecting data are based on gathering subjective information from participants (Creswell, 2003: 18). Through such a method, the researcher is able to analyse the value which participants associate with the elements in their environment. This approach uses a holistic method towards data collection and observes participants with the understanding that their opinions and behaviours are a result of a broad frame of reference that cannot be summarised in a few variables (Taylor, Bogdan and DeVault, 2015: 9). While the qualitative approach recognises the value of subjectivity in determining the basis of the decisions and actions of participants, Baxter and Jack (2008: 545) note that this approach still acknowledges the importance of the objectivity of the researcher and as a result does not reject its value in research.

The qualitative method was appropriate for this study because it enabled the researcher to identify the perceived needs of the fashion industry supply chain, based on the opinions of the participants. It also allowed the researcher to determine the potential response to the adoption of social media in the supply chain by South African fashion industry stakeholders, based on the attitudes of participants towards these applications. Using this method to gather information from participants gave a more detailed understanding of the role social media can play in the fashion supply chain. Through understanding the needs of the supply chain stakeholders along with the characteristics and potential use of social media in the supply chain, the researcher was able to give a more realistic perspective of how the people targeted to use the technology would respond to it, thus determining its potential adoption in the industry.

4.6. Study site

The study was conducted in Durban, South Africa. Durban is situated in the province of KwaZulu-Natal. KwaZulu-Natal province is one of nine provinces in the country. Due to the escalating growth of the region's economy and its proximity to the ports, there

are a variety of supply chain stakeholders present in the area (KwaZulu-Natal Top Business, 2015: 1-3), thus making it suitable for the study.

4.7. Target population

According to Stevens, Loudon, Ruddick, Wrenn and Sherwood (2006: 183), selecting the population with which the study will be targeted is the first sampling decision. Welman, Kruger and Mitchell (2005: 126) explain that a target population is '*the population to which the researcher ideally would like to generalise his or her results*'. The population for this study consisted of all the companies in the South African fashion industry that held the following characteristics:

- The company had to be based in South Africa, with head-offices in the country.
- The company had to be a retailer which actively sells fashion products and has a competitive role in the South African market.
- The retailer had to have retail outlets available across South Africa.
- The company had to have some form of online or social media presence.
- The company also had to have an internal Supply chain and Logistics department.

In order to find a suitable retailer, the researcher made a list of seven companies that met these criteria, to the researcher's knowledge. The researcher proceeded to make contact with each of the companies on the list to further enquire about their eligibility and possible participation in the study. Through the telephone call responses, one company from the list of seven eligible retailers that met the criteria was selected as most suitably positioned and willing to partake in the study. This major South African based apparel retailer was identified as the focus of this study. The supply chain of this retailer was investigated in accordance with the constructs of the Agile Supply Chain Framework. The retailer is referred in the study as Company A. Its E-commerce Third Party Logistics Provider (3PL) (referred to in the study as Company B) was also identified as a representative of the retailer's supply chain stakeholders.

4.8. Sampling

The researcher had to decide on which sampling method to use and hence the nature and size of the sample.

4.8.1. Sampling methods

There are two types of sampling methods, probability sampling and non-probability sampling strategies (Zikmund and Babin, 2006: 411). In probability sampling each member of the target population has an equal opportunity of being involved in the study. In a non-probability sampling, some elements of the target population will not have equal chances of being included in the study as Zikmund and Babin (2006: 411) explain that a large amount of ‘personal judgement’ is involved in the technique. The research made use of non-probability sampling, meaning that members of the target population outside of the KwaZulu-Natal area did not have an opportunity of being included in the study. In addition, members outside the chosen retail company did not have equal chances of being included in the study, due to the case study approach chosen for the study.

Purposive sampling is a type of non-probability sampling method which was used for the study (Adler and Clark, 2014: 118). Purposive sampling is divided into two subsets: judgement sampling and quota sampling. According to Sekaran and Bougie (2010: 277), judgment sampling ‘*involves the choice of subjects who are most advantageously placed or in the best position to provide the information required*’. Judgment sampling was used to choose the participants in the chosen retail company, whose strategic positions in the organisation meant that they were better able to provide suitable information to address the research objectives and determine the potential role of social media in the organisation’s supply chain.

4.8.2. Sample nature and size

The various positions and departments that were identified for the study were in relation to the key functions in value chain management: purchasing/resourcing, transportation and logistics and supply chain management. The marketing department was also included due to its direct relationship and knowledge of final customers. Information from this department was necessary to address the Agile Supply Chain Framework component of market sensitivity. The human resources department was also an area into

which insight was necessary. This is due to its involvement in the training and development of employees when new technologies and processes are adopted. This department therefore, has knowledge on the level of openness or resistance employees have towards the adoption of new technologies and processes.

The Human Resources Manager, along with the Logistics Director, as the gatekeeper, identified staff members who were better positioned to provide the information required by the researcher. The sample comprised eight participants:

4.8.2.1. Resources Director

Information from this respondent was useful to determine how the organisation manages its network of supply chain stakeholders. The Resources Director thus gave insight into how relationships with these stakeholders are currently managed. The Director was identified as better positioned to give a holistic perspective of the supply chain.

4.8.2.2. Supply Chain Manager and Supply Chain Planner

As the study was attempting to determine if there were opportunities for the implementation of social media, in the supply chain, it was important to gain insight into the Supply Chain function. There were thus two participants from this department: the Supply Chain Manager and the Supply Chain Planner.

4.8.2.3. Marketing Director and E-commerce Manager

The market sensitivity of the supply chain, will, to a great extent, be determined by the organisation's marketing department. This was also the first department to implement social media in the business and had reasonable insight into the advantages and challenges faced during this adoption process. The Marketing Director and E-commerce Manager were interviewed for this section. The E-commerce Manager had previous experience in the company as a Digital Marketing Executive and therefore had an understanding of how the organisation uses social media tools to improve market sensitivity.

4.8.2.4. Logistics Director and E-commerce Third Party Logistics provider (3PL)

The internal logistics department gave insight into the current level of virtual and process integration of Company A. The Logistics Director was interviewed to give insight into this. The 3PL was identified by the Logistics Director as potentially having

useful and valuable information for the study. The implementation of social media in the focal company would extend to this company as the 3 PL, linking through the E-commerce section of the business. The Managing Director of this company was therefore interviewed.

4.8.2.5. Human Resources Manager

Internal integration is an important element of agile supply chains. The Human Resources Manager, as the participant from this department, allowed the researcher to determine the level of integration with the organisation's internal stakeholders. This respondent also gave insight into how often the organisation adopts new technologies. Information given on how staff members have responded to the adoption of new technologies in the past also allowed the interviewer to determine if there would be any form of resistance from the employees if social media were adopted for use in the supply chain.

4.9. Data collection methods

Information for this study was gathered using in-depth, face-to-face interviews. This research technique was suitable for the study because it allowed the researcher to achieve an understanding of the potential social media have to improve agility. It also gave awareness of the types of behaviours, perceptions and reactions executives and employees currently have and could potentially have towards the implementation and use of social media technology.

4.9.1. Interviews

There are three main types of interviews. These are structured interviews, unstructured interviews and semi-structured interviews (Ebrahim and Bowling, 2005: 218). This study used semi-structured interviews. This is a combination of the structured and unstructured questions. The researcher used lists of not more than twenty-five questions to guide each of the interviews. These questions were included in the interview guides (Appendices A to E), which gave the interviewer direction for which issues to raise in the interviews with the different departments (Welman, Kruger and Mitchell, 2005: 166). The entire interview process was set to last between thirty minutes and forty-five

minutes with each of the individual participants. The lengths of the interviews depended on the extent to which participants explained or elaborated on answers.

4.9.2. Conducting the interviews

This section will discuss the processes and methods observed during the data collection phase:

4.9.2.1 Pre-interview

Before the researcher conducted the empirical research, the researcher made contact with the company chosen for the study. The researcher then met with the Human Resources Manager and the Logistics Director to explain the objectives of the study.

After gaining ethical clearance from the University (see Section 4.12), the researcher was provided with a list with the contact details of all the employees to be interviewed. The interviewer then proceeded to make contact with each of these participants, in order to make appointments for the interviews. Interviews were then scheduled according to the availability of the individual participants. According to Sekaran and Bougie (2010: 193), interviews may be carried out telephonically or face-to-face. The authors note that the manner in which interviews are conducted is dictated by the complexity of the topics to be discussed in the interview, the geographical situation of participants and interviewers and the expected duration of the interview. Due to the short distance between the area in which the researcher is based and the area in which the participants are located, it was worthwhile for the interviews to be conducted face-to-face.

4.9.2.2. During the interview

All participants participated voluntarily and signed an informed consent form before the interview started (Appendix F). The researcher also informed the participants that the interview would be recorded. The informed consent form was given to the participants to read and sign before the interviewer proceeded to follow the interview guide appropriate to the particular participant.

There are various advantages of using semi-structured interviews. One benefit was that the researcher was able to prepare for the interviews, in advance, through drafting interview schedules to use as guidelines during the interviews (Robert Wood Johnson Foundation, 2008: 1). Another benefit of using semi-structured interviews was that the

interviewer had the flexibility to ask additional questions that were raised by the answers given by the participants. This gave the research more detailed information for a more in-depth analysis. This also put the researcher in a position to recognise any significant problem areas which were useful for identifying the needs of the organisation and its supply chain (Sekaran and Bougie, 2010: 189). Participants were also able to better express themselves as a result of the open-ended nature of this type of interview structure (Robert Wood Johnson Foundation, 2008: 1).

4.9.2.3. Post-interview

After each of the interviews, the interviewer prepared the recordings and notes written during the interviews. The researcher then proceeded with the transcription, coding and analysis of the data collected.

4.10. Data Analysis

The data collected through the interviews was analysed for the study. According to the University of KwaZulu-Natal (2014: 6), data analysis is '*the process of organising and interpreting the data generated*'. Information recorded from each of the interviews was transcribed.

Thematic analysis was used to analyse the data collected. This type of data analysis requires the researcher to identify themes or patterns present in the data (Joffe and Yardley, 2004: 56). Some of the themes explored in this study were the feelings, behaviours or perceptions towards the use of social media in the supply chain. Welman, Kruger and Mitchell (2005: 211) explain that themes can be noted at any point in the course of the data collection process. Deductive coding may be used, in which themes or coding categories arise from preliminary investigation or pre-existing ideas which the researcher has. The raw information may suggest further themes, with codes (words or ideas) arising repeatedly in the data (Joffe and Yardley, 2004: 57).

After transcribing the data into written transcripts, the researcher studied the transcripts and wrote notes beside each transcript (Terre Blanche and Durrheim, 1999: 141). Two themes had already been pre-identified. However, the researcher examined the transcripts further after the identification of these themes, to ensure that these were consistent with the data collected. The researcher aimed to search further for categories

and codes existing in the data collected. Using thematic analysis, the researcher identified explicit (manifest or directly observable) and implicit (latent) categories and codes that occurred within the data (Joffe and Yardley, 2004: 57). The researcher counted repeated words in order to identify these common codes (Welman, Kruger and Mitchell, 2005: 213). This information was used to construct the findings of the study.

4.11. Reliability and validity

Golafshani (2003: 598) describes reliability as the degree with which the findings of a study are credible and representative of the entire population. The term is further used to determine the extent with which the same deductions could be made if a similar study were to be conducted by another. Although qualitative studies are not normally tested for reliability, Golafshani (2003: 601) and Shenton (2004: 64) explain that this can be done in the context of the quality and trustworthiness of the study with regards to enabling a better understanding of the subject. Noble and Smith (2015: 34) further argue that qualitative studies should instead be tested for truth, consistency and applicability.

According to Noble and Smith (2015: 34), in order to reflect the truth component of reliability in a qualitative study, there should be recognition of the existence of ‘*multiple realities*’ and their related biases. The study used triangulation in order to get a wider perspective. Patton (1999: 1192) argues that triangulation is normally applicable to the use of multiple methods of data collection; however, Shenton (2004: 66) explains that it can also apply to the range of participants that participate in a study. In order to facilitate triangulation, the study was designed to gather perspectives from a number of stakeholders with different functional backgrounds. This ensured that there was a less biased conclusion to the potential role of social media in the organisation and in its supply chain. Insight into the opinions of the 3PL, as a representative of the retailer’s supply chain also ensured this. It also provided a more organisational-wide understanding of the subject. However, while the researcher selected participants involved in various parts of Company A’s supply chain, mainly senior management were selected. There was thus very little representation of employees from the tactical and operational levels of the organisation, thus introducing the possibility of bias. In addition, only one representative from the E-commerce 3PL participated in the study.

Noble and Smith (2015: 34) further explain that qualitative studies should be consistent and this is normally in accordance with the rate of trustworthiness. To ensure the consistency and trustworthiness of the study, the researcher has presented an account of all the methods used to conduct the study. The researcher has also given an account of the limitations of the study. In order to further ensure that the information was credible and trustworthy, the researcher focused on familiarising herself with the organisation's culture, before conducting the interviews, in order to ensure that the interview questions were relevant to the company and its supply chain (Shenton, 2004: 66). Furthermore, before beginning the interviews, the interviewer ensured that participants were aware that their contribution was voluntary and that they could choose to not partake in the study, at any point before its completion. Confidentiality was guaranteed to participants in the study. According to Shenton (2004: 66), establishing this before the interview process can enable participants to feel more comfortable providing honest responses to questions.

Noble and Smith (2015: 35) further explain the value of applicability in qualitative studies. In order to ensure this, a detailed description of the context with which the study is applicable is necessary. While the study of a single company is limited in its applicability to the entire industry, the themes emerging from this research and the description of the type of organisation with which it applied can nonetheless provide a starting point for further research in this field.

Validity is necessary to ensure that the research has not deviated from what it was intended to evaluate (Golafshani, 2003: 599). The instruments were tested for construct validity. This was intended to ensure that the information the interview guides were seeking to collect was relevant and useful for the topic at hand (Welman, Kruger and Mitchell, 2005: 142). The interview schedules were based on the conceptual framework used in the study in order to ensure this. In addition, the tools that were discussed in the literature review were also presented in a table revealing their potential applications to the agile supply chain, as discussed in the review.

4.12. Ethical Considerations

Various ethical considerations were maintained during and after the course of the research process. When the researcher met with the Human Resources Manager and the

Logistics Director to explain the objectives of the study, a gatekeeper's letter was requested from them. This gatekeeper's letter was submitted as part of the requirements for the application of ethical clearance from the university. The researcher ensured that no physical, mental or emotional harm was caused to the participants of the study (Sekaran and Bougie, 2010: 221). As part of the ethical clearance application process, the researcher submitted the interview guides to be used for each of the interviews that were to be conducted for the study (Appendices A to E). Ethical clearance was issued to the researcher before the empirical research could take place (Appendix G). This was to ensure that the institution that the researcher was working through, University of KwaZulu-Natal, was satisfied with the manner in which the data for the study would be collected.

All participants were asked to participate on a voluntary basis and did not receive any form of compensation in exchange for their participation. In order to serve as proof of this voluntary participation, an informed consent form was given to each of the participants before the interview (Gates, 2010: 34). This form gave the participants detailed information about the study, why it was being conducted and how the privacy of the information collected would be preserved (Appendix F). Each participant reserved the right to withdraw from the study at any point before its completion (Smith, 1999: 83). The entire interview process was recorded and transcribed to ensure that the data collected was not distorted or misrepresented (Polit and Beck, 2008: 386).

The information collected from the interviews was kept confidential. The anonymity of all participants involved in the study was preserved throughout the research process and in the presentation of the findings. The data was used by the student for the duration of the research. In addition, for a period of five years, the transcripts along with copies of the recordings, are to be kept locked in a safe by the researcher's supervisor, Dr Hans Salisbury.

4.13. Limitations of the study

There are some limitations to the study. Due to the novelty of the topic, there is limited research in peer-reviewed journals available to provide a background to the study. Consequently, the researcher was forced to rely heavily on descriptive and exploratory research reported in industry publications and from internet platforms.

Another limitation of the study was that the primary research was limited to a company in the KwaZulu-Natal region. In order to mitigate this limitation, a competitive retail company with an online-store presence and outlets available in other parts of the country was the subject of the case study. Furthermore the company's policies are mostly consistent throughout the country.

The empirical research followed a case study research design. The study was thus also limited to one organisation's supply chain. While the use of a case study approach may limit the generalisability of a study, Flyvbjerg (2006: 219-220) maintains that the value created from analysing a single unit is largely misjudged while the concept of generalisability is commonly overestimated as a representation of the scientific validity of a study.

4.14. Conclusion

This chapter gave detail on the methods employed for data collection and analysis. The theory and concepts of research methodology were discussed and an account of how these were implemented in order to address the research objectives and research problem was given. The researcher used a case study research design focusing on a single organisation's supply chain. A qualitative approach to collecting data was applied. Semi-structured interviews were the chosen research instrument used to collect data from all nine participants included in the research sample. The researcher also observed various ethical measures during the course of the study, such as the elimination of bias and ensuring that participants were aware that their involvement was voluntary and they could reserve their right to withdraw from the study. However, some of the elements of the research design presented limitations for the study. Issues of the validity of generalising to all elements of a population when using case studies and the limited literature currently present on the implementation of social media in the supply chain, were noted by the researcher.

CHAPTER FIVE: FINDINGS

5.1. Introduction

The methodology described in Chapter Four was informed by the Agile Supply Chain Framework discussed in the literature review in Chapter Three. The objectives for the study were formulated according to this framework and were based on the four constructs for the agile supply chain: market sensitivity, virtual integration, process integration and network based management. In addition, Chapter Three presented literature on social media and various social media tools currently available for use in the supply chain.

Data was collected using in-depth interviews with eight participants. A case study approach was used and this focused on the supply chain of one retailer that is a major competitor in the South African apparel industry. This chapter presents the findings from the empirical data collection.

Thematic analysis was used to arrange the data that was collected. The themes were organised according to the objectives of the study which were:

- To assess the industry's current sensitivity and responsiveness to market changes.
- To identify the level of virtual integration of stakeholders in the South African fashion supply chain.
- To evaluate the extent to which existing technologies, used in the South African fashion industry, facilitate process integration.
- To recognise how efficiently strategic relationships are presently coordinated in the complex fashion supply chain in South Africa.
- To assess whether there is a perceived need to improve agility of South African fashion industry supply chains.
- To deduce from the findings of an empirical study, if there are opportunities for the adoption of social media in South African fashion industry supply chains.

5.2. Organisation profile

The fashion industry has historical and economic value to South Africa (Kim, 2013: 214). With a selection of stakeholders relying on the growth and preservation of the local industry, a lot of focus has been given into how the industry can improve its competitiveness and performance (South Africa.info, 2014: 7). The increasingly globalised market has heightened the competition for market share of the local consumer base has moved the attention of South African retailers from merely focusing on minimising supply chain costs to more holistic strategies that facilitate speed-to-market, flexibility and responsiveness (Tukker, 2013: 1-4). The focal company that was approached for this study is a major contributor to the apparel industry in South Africa. The organisation's focus is not limited to fashion but also embraces homeware and other lifestyle categories. The company is also an electronic commerce (E-commerce) vendor. Customers therefore have the option to purchase products in the company's retail outlets or online in the virtual store. The strategic position of the retailer in the South African market, as a low price vendor, made it a suitable case to study to determine the role of social media as a supply chain technological advancement. In order to have an impression of the retailer's supply chain network, one respondent from the retailer's 3PL was included into the sample of the study. The name of the focal organisation, its 3PL and the participants who took part in the study will remain anonymous. The companies that participated will be referred to as follows:

- Company A: the retailer
- Company B: the 3PL

5.3. Respondent profile

Eight participants were included in the sample for the study. The participants that participated in the study were mainly senior management. The positions of the participants were not limited to the Supply Chain and Logistics department. A cross-functional strategy that involves the integration of other departments contributes to the overall agility of an organisation and its network. The inclusion of the marketing department was useful for the study as it gave an impression into the organisation's market sensitivity. An understanding of the consumer base's needs is the main focus of the agile supply chain and this section carries that responsibility. In addition, the

participation of the Human Resources department in terms of the skills and people management was necessary to determine how social media would be received by the focal organisation’s staff members. **Table 5.1** shows the positions of each of the participants.

Table 5.1: Organisational roles of participants

Participant	Position
Participant 1	Position: Logistics Director
Participant 2	Position: Human Resources Manager
Participant 3	Position: 3PL Managing Director
Participant 4	Position: Resources Director
Participant 5	Position: Marketing Director
Participant 6	Position: Supply Chain Manager
Participant 7	Position: Supply Chain Planner
Participant 8	Position: E-commerce Manager

5.4. Theme 1: Current agile practices

Company A and its supply chain are moving towards more agile and responsive practices. According to Participant 4, the basic concept of fast fashion is centred on “*getting the trend into the store faster to delight your customer*”. The consequence of failing to provide trends faster than the competition is that consumers may choose the alternative retailer to make the purchases of the trends that they desire. This may result in lost sales for the retailer and reduce the associated brand image of the company as a reliable fast fashion retailer:

“...if you are not doing that or don’t have some process to get your fashion to your customer faster, we are aware that you are not leading the pack. You will be dwindling and the customer will go somewhere where they can get that catwalk fashion or emerging trend faster. From that point of view, having people who do that very well, trading in the same retail space as we do, increases the pressure to do that better” (Participant 4).

Participant 4 thus explains that there is a gap between the company's agility and that of competitors such as Zara, which seems to present the benchmark for agile practices in the fashion industry. In order to bridge this gap, Participant 4's response thus proceeds to focus on the quality of relationships that a retailer needs to maintain with the stakeholders in its supply chain. In order to improve agility of the entire value chain, it is hence important to retain strategic relationships. It is also necessary that all partners are better positioned to ensure that their operations are more flexible and responsive to changes in the market. As a result, the retailer has implemented a system-wide approach to improving the agility of its supply chain, through involving its network partners in the enhancement process:

“So we have been investing more heavily with our manufacturers in understanding how to do that better. So how to be a fast fashion retailer, a quick response retailer when you are trading alongside the likes of Zara whom we know do it best in the world”(Participant 4).

The findings that follow therefore reveal some of the strategies that the retailer, as the coordinator of its network of partners, has implemented in order to facilitate the improvement of its supply chain agility and its network's overall competitiveness in the increasingly saturated market. The analysis also gives an impression of how the retailer's supply chain network functions. The findings therefore, further present a brief insight into the operations of Company B, as a 3PL and a partner of the retailer. Together, this information provides an understanding of the industry that these companies operate in and the value chain's current level of agility. In addition, the present use of social media by the retailer and its supply chain partners is investigated. This enabled the researcher to determine the value chain's perspective towards social media and the extent of the adoption of these tools. Moreover, the perceptions of both Company A and Company B towards social media are outlined, enabling the researcher to deduce the potential for social media to be adopted by the retailer and its supply chain.

The first five objectives of the study present the current strategies employed by Company A and its supply chain in order to enable its agility. The first four objectives focus on the four constructs of the Agile Supply Chain Framework. For each of these objectives, participants communicated their perceptions towards the current level of

agility. This enabled the researcher to meet the requirements of objective five: “*To assess whether there is a perceived need to improve agility of South African fashion industry supply chains*”. The current strategies employed by Company A and its supply chain stakeholders were organised into one major theme: Current agile practices. The theme was divided into three categories: Market sensitivity and responsiveness, Technological development and Network Management. Codes were identified for each of these categories according to the responses given by the Participants. These are presented in **Table 5.2**.

Table 5.2: Theme 1- Current agile practices

Category	Code
1. Market sensitivity and responsiveness	<ul style="list-style-type: none"> - Profile of consumers served by retailer -Sensitivity to global trends -Speed-to-market -Consumer behaviour - Network sensitivity to market changes
2. Technological development	<ul style="list-style-type: none"> -Valuable information-sharing -End-to-end visibility -Process integration
3. Network management	<ul style="list-style-type: none"> -Location of stakeholders - Development of supply base

5.4.1. Category 1: Market sensitivity and responsiveness

Sensitivity and responsiveness to the needs of customers is the core of agile supply chains. In order to achieve this objective, the interview guide for the participants from the Marketing department (Participant 5 and Participant 8) was designed to determine the sensitivity that the retailer has towards the needs of the market. The interview guide for the Resources department (Participant 4) was also partly designed for this purpose. Participant 3 from Company B contributed towards determining the responsiveness of the 3PL as a supply chain stakeholder. Other participants also gave insight into the current strategies for market sensitivity and responsiveness.

5.4.1.1. Profile of consumers served by retailer

Participant 4 and 5 gave an explanation of the types of consumers that the company serves. They also explained where these consumers are situated on the product and trend lifecycles. Three types of consumers were identified: the early adopters, mass market and the late adopters. **Table 5.3** represents a summary of this profile.

Table 5.3: Summary of consumer profile for Company A

Consumer type	Product lifecycle/ Trend cycle	Profit contribution
Early adopters	Seek edgy and new fashion trends that still in the initial stages of the trend cycle and are not yet widely accepted by the masses.	Smallest profit contributor.
Mass market	Purchase trends when they are more popularly and widely accepted. Trends accepted by this consumer type are in the middle of the product or trend cycle.	Largest profit contributor.
Late adopters	Purchase products as they reach the end of their lifecycle.	Low profit margins.

In order to be market sensitive, the organisation has chosen to ensure that its product offerings meet the needs of each of these three types of consumers and where they are on the trend cycle:

“It’s about you ensuring that you are catering for everybody in the curve of a product lifecycle and understanding that the majority will sit somewhere in the middle” (Participant 4).

In addition, Company A has to further segment its consumers based on other factors such as their geographical location and demographics.

After identifying the characteristics of the customers that the organisation serves, Company A goes through a continuous process of determining, capturing and delivering the trends that each of these customer groups are likely to be attracted to. In addition, Company A further aims to use this information to provide an accurate identification of the period for which to deliver these trends and in which quantities.

5.4.1.2. Sensitivity to global trends

Global trends are becoming more influential on the tastes of consumers in South Africa. To improve trend forecasts and predictions, the organisation's Trend, Design, Resourcing and Merchandising teams make reference to a variety of sources. Participant 4 explained that staff members travel, attend lectures, read articles and trend websites and also reference global trend masters:

- a. **Travelling:** In order to identify and determine the types of global trends that will be influential on the South African market, travelling plays a major part in the trend capturing and prediction process.
- b. **Lectures:** In order to increase the management team's ability to identify and forecast trends, the company invests in educational sessions on trends. Through partnerships with educational facilities such as the Gordon Institute of Business Science, Company A's team members that are involved in the trend forecasting process are able to receive lectures about subjects that include "*trends and emerging patterns*".
- c. **Reading articles:** Company A described cross-functional team members involved in the trend capturing process as "*avid readers*". As a result of this, staff members circulate a selection of articles from varying sources that include websites like Mckinsey. Through this reading, a greater understanding and identification of global trends is built and staff members are kept continuously updated.
- d. **Trend sites:** Company A also references trend sites such as WGSN.
- e. **Global Trend Masters:** Continuously keeping up-to-date with the opinions of global trend masters such as influential fashion and lifestyle trend forecaster, Li Edelkoort, is another way in which the organisation ensures that its staff are constantly aware of which trends are gaining popularity in the world market.

- f. **Collaboration with suppliers:** Collaborative efforts towards the accurate prediction of trends also increase the organisation's sensitivity and responsiveness to the market's needs: *"... keeping everyone in the loop, also interaction with our key stakeholders. So we encourage very transparent relationships with our key stakeholders. Our suppliers are a great source of information. It is really a combination of expertise"* (Participant 4).

5.4.1.3. Speed-to-market

The trend capturing methods that Company A uses lead to the quick identification of trends. This is a valuable input that enables the supply chain's speed-to-market. However, the location of suppliers and the strategies for the network management of these stakeholders are what determine the overall agility of a supply chain. Company A's products are mainly manufactured in countries such as India and China. However, for certain products that the organisation identifies as requiring speed-to-market and quick response, local manufacturing takes place. Participant 6 estimated a period of eight weeks for the time between concept and store for locally manufactured products:

"When we ear mark products, they are manufactured locally and we will buy additional fabric to work on a quick response type of methodology which is 8 weeks from your time of conception all the way back into stores so it can go into stock quicker" (Participant 6).

However, Participant 6 noted that Company A's ability to respond quickly to market needs is not to the level of its European competitors:

"I would say we are pretty good at it but not as good as the European retailers" (Participant 6).

5.4.1.4. Consumer behaviour

Many internal stakeholders are involved in Company A's review processes for trends and product ranges. Merchandising, Trend, Design and Marketing internal representatives integrate to review how consumers are responding to products that are already being sold in Company A's outlets. Participant 5 described Marketing's involvement in this process as a representation of *"the voice of the customer inside the room"*. A number of information sources exist for Company A's marketing team to engage with consumers and gain insight into their behaviours. This information is not

only relevant to Merchandise and Trend teams. Participant 5 added that Company A has found some information captured from these sources relevant for Quality Assurance (QA) teams. Participants 5 and 8 also explained that in some circumstances this information is distributed to the Supply chain and Logistics department. Various channels that include E-commerce, point-of-sale information and the analysis of product returns are used to understand consumer responses to the products and services offered by Company A:

- a) **E-commerce:** Company A's online shopping option has provided the retailer with a fairly new and unusual channel to monitor and determine consumer behaviour. Through the interactive shopping experience the company offers its clients, Participant 5 comments that it is "*able to manage their journey from start to finish and really unpack the feedback that they have given*". For example, unlike in a conventional bricks and mortar store, if an online or E-commerce consumer has an unsatisfactory experience, the organisation is able to determine at which point in the purchasing process this took place.
- b) **Point-of-sale information:** Using the traditional method of sales figures to determine consumer responses to products and product ranges, Company A is able to get an impression of the preferences of these consumers. Through this point-of-sale information, Company A can better understand which items consumers of its products are spending their money on and which items they are not spending their money on. Company A uses this information to determine whether to increase the volumes of certain items and to decrease those of others that are not performing as well in stores. In addition, Participant 8 explained that this sales information is also used to determine at which point various trends are in their lifecycle.
- c) **Analysis of product returns:** According to Participant 5, instead of reflecting consumers' dislike of a particular trend, a high number of returns for a product may indicate a quality defect that is a result of a fault in the supplier's operations. Internal processes that include the evaluation of product returns enable the organisation to have more insight into the reasons behind high patterns of returns.
- d) **Other feedback channels:** Feedback from other sources enables the retailer to get a deeper understanding of consumers' responses and in some cases determine the reasons to why consumers are not purchasing a product range or

why there is a high pattern of returns for a particular product. Through feedback channels such as social media pages, Hello-Peter and Company A's call centre, the retailer gains insight into the reasons behind consumer behaviour.

5.4.1.5. Network sensitivity to market changes

As a result of the growing movement towards more convenient methods of purchasing products, the focal organisation developed an E-commerce purchasing channel for customers and a separate section of its organisation that would focus on meeting the needs of this growing market in South Africa and in the other countries that the company serves. Online stores for each of the focal company's store divisions were developed. According to Participant 8, the apparel online store introduces about 400 new fashion items each week. In order to serve this new growing E-commerce section of the company, Company B was outsourced to deliver the various purchases to customers. In order to be more effective and cost-efficient while meeting these new needs of the final customers, the 3PL also made changes in its operations.

“So what we have done strategically, as a consequence of the growth of online shopping, is that we have invested in a small part of the business that focuses on small parcel consumer deliveries. So we realised that it was going to be a growing trend with our retail customers to deliver small parcels and we realised we were not well positioned to deliver the small parcels because that is not our game”(Participant 3).

5.4.2. Category 2: Technological developments

This category combines Objectives 2 and 3 and looks at the technologies and practices the retailer and its value chain have implemented for both process and virtual integration.

The retailer is constantly introducing new technologies. The organisation's Information Technology department pushes for the implementation of new technologies that are more convenient and efficient for employees and their tasks. Company A's Supply chain and Logistics department refers to several sources for determining best industry practices. Participant 1 noted that sources include structured annual or bi-annual forums such as The Supply Chain Summit and conferences such as ProMat. Published articles from these conferences are also referenced and at times the retailer makes contact with the authors of these papers for additional information. Participant 2 added that the

organisation has also implemented structures and guidelines to direct the process of selecting tools that are suitable for the development of the organisation. An example of these initiatives is the recent introduction of a Human Resources Management automated system called VIP which facilitates the easy access to staff records. Previously this type of information was kept in files but with the new system accessing information has become less laborious. In addition, the training of staff members has also been extended to electronic learning (E-learning), through an initiative called ‘Your Journey’. This makes it convenient for internal staff members to participate in training even at their own desks. However, this E-learning is limited to particular types of training:

“Before employees were required to train in a class, now employees can go online for the training” (Participant 2).

The 3PL also revealed how receptive its company is towards implementing new technologies. Its recent adoption of Evernote, a modern tool for task management, showed that the 3PL also has initiatives to implement modern technologies that help improve its operations.

However, while Company A has many initiatives to encourage the adoption of technological advancements, Participant 1, 2 and 6 mentioned that there are some barriers to the adoption of new technologies:

- **Age of employees**

According to Participant 2, sometimes the age of employees and the number of years that they have been working and using particular technologies affect their level of reception and adaptability to new technologies. The average age of employees in the Supply chain and Logistics department is 38. Employees who are 50 and above were identified as those who sometimes struggle with adapting to new technologies, while those who are younger find it easier:

“It is sometimes difficult for employees who have been around for a long time or who are no longer very young to adapt to using new technologies” (Participant 2).

- **Legacy systems**

Another barrier is the low rate of technology development in the supply chain industry. According to Participant 1, there are a number of “*legacy systems*” that

are currently being adjusted for use in the modern supply chain. This reduces the pool of technologies from which the retailer and its stakeholders can pick to improve their performance:

“Smart device technology roll-out is in our world behind the time. Freight forwarding and clearing is such an ancient process. Technologies are shocking! There is nothing proper. So when you go to the market and say what is the best supply chain visibility tool for fast fashion retail, even if you can filter it like that...impossible. There is a lot of legacy out there” (Participant 1).

- **Unfavourable environmental conditions for implementing best practices**

While the retailer makes efforts to determine and understand global best practices, Participant 6 noted that due to the differences in the socio-economic and technological situations that the retailer and some of its locally-based supply chain stakeholders are faced with, in comparison to first world competitors, a knowledge of the best practices does not always have immediate and relevant applications to the South African market:

“You can know what best practice is but you may only achieve that in four years time...We are not very good at evolving our supply chains as well as the European counterparts. We are very good at surviving in very tough conditions. All those best practices are very foreign to us” (Participant 6).

- **Supply chain is a new concept**

Another barrier to the adoption of some technologies in the retailer’s supply chain is that the function is fairly new to the South African market. According to Participant 6, many of the local suppliers only have divisions such as Finance and Human Resources and do not have Supply Chain departments. In addition, Participant 6 noted that for those with Supply chain departments, the function is still largely only viewed as a logistics division. Therefore, Participant 6 noted that it is not always easy to adopt new technologies and new practices end-to-end.

While the retailer and its supply chain face these barriers, there have been a number of technologies that Company A and its partners have implemented. This category combines Objectives 2 and 3 and looks at the technologies and practices the retailer and its value chain have implemented for both process and virtual integration.

5.4.2.1. Valuable information-sharing

Objective 2 was to identify the level of virtual integration of stakeholders in the South African fashion supply chain.

Participants noted that information-sharing is imperative to the smooth-running of the supply chain and to ensure that there is transparency and end-to-end visibility of what is happening within the organisation and in the value chain. The type of information shared is also important. The findings show that the information that is shared needs to be value-adding in order to be useful. Efforts have thus been made to improve this aspect. Questions on how valuable information-sharing is to the retailer bore these responses:

“It’s critical. It has to be. Without information, you are blind. And it has to be the right information, valuable information. You have to have it” (Participant 1).

“Within the supply chain it is vital. At the moment we are on a big drive with information-sharing, system integration” (Participant 7).

Virtual integration in the supply chain is facilitated using the internet. In order to determine the level of this integration, the researcher sought to discover if using the internet is common amongst the retailer’s supply chain stakeholders. Company B, as the retailer’s 3PL, had already given an impression that it does use the internet in its facilities. Participants from Company A noted that all stakeholders, particularly suppliers, were required to have internet access. This is because the retailer’s orders are delivered through online systems:

“I would think all of them. They all need to because our order processes are web-based” (Participant 7).

“Probably 100%, because our purchase orders are coming over the web” (Participant 6).

A number of the tools that the retailer and its stakeholders use for information-sharing and integration are facilitated using the internet. The retailer shares information using various electronic tools. The types of tools used range from what can now be referred to as more traditional channels such as emails, to structured tools such as EDIs and largely

unstructured social media tools such as Whatsapp. The ideal tool is chosen based on the type of information that is to be shared. Process-oriented information to be sent to external stakeholders is facilitated through EDI, while information required to provide updates is sent through the unstructured Whatsapp. Whatsapp is used for both internal and external communication:

“Information that drives process is generally through an EDI and if it is external. Emails are big. Whatsapp gets used a lot” (Participant 1).

“Emails are still the major form of communication. We have integrations with most of our customers, so there are server level communications for data but emails are still predominant” (Participant 3).

In addition to Whatsapp and emails, the organisation has also introduced an internal communication tool called ‘Link’. This tool was described by a respondent as resembling a *“pop-up chat”*. Link is used internally, as an alternative to emails:

“If it is something small that you don’t really need to send an email about, you can just link someone and it will pop up on their screen and they can respond to it” (Participant 7).

5.4.2.2. End-to-end visibility

The retailer has made considerable efforts to ensure that it has visibility of all the stakeholders that are involved in the entire supply chain. The initiative to determine which indirect stakeholders are partners in the retailer’s extended value chain was referred to as a *“key driver”*. Being aware of who the suppliers’ suppliers are is essential for also understanding and determining the types of cost drivers involved in the supply chain. Furthermore, through identifying such stakeholders, the company is also able to determine if all these indirect partners are meeting the retailer’s standards in terms of sustainable and ethical business practices.

Four participants were asked if their organisation was aware of its suppliers’ suppliers. The responses to this question seemed largely connected to the role of the respondent within the organisation. Two participants (Participant 1 and Participant 4) at the senior management level noted that they were aware of their extended network of suppliers, while two others (Participant 6 and Participant 7) on the operational level noted that that

they were not aware of all the stakeholders in the extended supply chain. However, it was acknowledged that the retailer was making an effort to ensure visibility of its extended value chain:

“Very much so. There could be 50 people in the chain that you don’t know about. So internally, it is a general strategy in the market. We want to go all the way back to the supplier. It is not that we want to get rid of everybody on the way. We just want to know who they are and what value do they add. Are we getting the exact amount of value from them and can we learn something from them? Sometimes there is a reduction in the process of touches of complexity” (Participant 1).

“No we don’t know every single supplier used by our suppliers” (Participant 7).

“Not all of them, no” (Participant 6).

Delivery delays

Unforeseen events are common in complex and extended supply chains. An insight into some of common causes of delays gave the researcher a greater understanding of the needs of the organisation’s supply chain. There are various types of delays that the retailer and its stakeholders experience. This indicated the type of real-time information that may need to be communicated through the supply chain. **Table 5.4** summarises some of the main delays that Participant 1 and Participant 3 noted.

The researcher further probed the methods used to communicate these disruptions. The methods of communicating the delivery delays varied according to the type of respondent. The retailer stated that delivery delays were communicated to the organisation using more traditional forms of communication: emails and telephones.

Table 5.4: Types of delays experienced by Company A and Company B

Type of delay	Description
Port delays	-Legislation compliance stops and checks. -Administration of shipping paper work.
En-route delays	-Breaking down of vehicles. -Traffic congestion on the route.
Customer type delays	-Final customer not prepared or available to receive E-

	commerce deliveries.
Warehouse delays	-Queuing of products entering warehouse/distribution centre
Flow of stock	-Changes in the rate at which stock flows through the supply chain.

From the 3PL's perspective, the sort of method used to communicate delivery delays is dependent on the type of customer. In response to the question, "*How quickly is information about delays in delivery communicated to relevant and affected stakeholders?*" participants gave the impression that updates about delivery delays were not always immediate or accurate and there was thus a need to improve this:

"Your freight forwarder or 3PL. They notify you as quickly as they know. And they will notify you 99.99% via email and the trick with the email is that it is not attached to a file. So it is just another email" (Participant 1).

"It varies depending on customer and customer protocol. For large customers there is integrated communications. So there will be updates as to what you are expected to receive, predefined times and times of arrival. But in the South African context, that time of arrival is not an effective measure yet. It is something we are still working on" (Participant 3).

Coordination of responses during disruptions

Previously, the management of Company A's supply chain and the delivery of products were the responsibility of suppliers. However, Participant 6 and Participant 7 discussed new developments that have diverted this responsibility to the retailer. This new role has enabled the retailer, as the focal company, to be better positioned to have more visibility of stock as it moves across the supply chain and to coordinate responses to disruptions that are a result of the geographical location of partners. In August 2015, there was an explosion at the Tianjin port in China (BBC, 2015: 1). This fatal explosion which was covered extensively by the global media, was an unforeseen event that disrupted the focal retailer's operations. In order to quickly respond to this disruption, stock that was to be shipped from the Tianjin port had to be re-routed. According to Participant 7, due to the retailer's new strategic role as the orchestrator of its supply chain network of partners, response to this disruption was quick:

“Just by the fact that we handle our own supply chain and handle our own imports, we are able to route that stock and to plan with our merchants and advise them that stock will be delayed and plan for that stock to come in” (Participant 7).

Identifying the methods used for coordination of responses during disruptions was also necessary to determine the organisation’s responsiveness to exception events. The modes of communication varied. Emails were a more common method for coordination for the retailer, while the 3PL noted Whatsapp and telephones as the modes of choice. Only one respondent out of the total number of five participants that mentioned emails in their responses, viewed emails as very effective:

“Email at this stage because it is the trusted route” (Participant 1).

“Typically we will update the group on Whatsapp or telephonically to the key people managing the situation and because we are kind of structured on a functional basis, the person whose function it is to manage risks would then control that risk process”(Participant 3).

“Emails, I think they are probably the best because of time zones and because of the availability of email devices, they are probably the best. Emails are not just on PCs anymore. They are available on more licensed sites, so very effective” (Participant 6).

While emails had been noted as the least responsive method of communication, responses showed that they were still the most widely accepted method of communication for the retailer and its supply chain partners. However, further probing revealed that the perceptions towards the use of emails for responding to disruptions were that they were not very effective for response situations. There was a comparison between Whatsapp and emails, with participants from both Company A and Company B explaining that Whatsapp enables them to be more responsive. In addition, during situations that require quick response, the group feature of Whatsapp provides a platform for senior management to be aware of how their teams are progressing in terms of responding to the disruption. Participant 1 explained that using emails, senders are likely to be in a position in which they are required to continuously resend emails, for example to notify of a disruption. Emails are normally resent when receivers do not respond. A lack of response, after resending an email, is normally followed up with a telephone call:

“The severity of the issue will drive that response time and people will generally be a pain. They will resend and resend and if there is no answer, eventually they will phone or they will escalate” (Participant 1).

Current strategies for end-to-end visibility

While not all participants noted that the organisation is aware of all the partners in its extended supply chain, there are various initiatives and methods that the retailer has put in place to ensure increase this awareness. SEDEX was identified as one of the main reliable sources of information about which suppliers are used by the retailer’s direct partners. Participant 1 discussed the Glass Pipeline, a technological development that Company A has implemented to facilitate end-to-end visibility.

The Glass Pipeline is a computer-based application which the retailer uses to improve end-to-end visibility. When the data collection was conducted in August 2015, this innovation had not yet been implemented by the organisation. However, plans for its implementation were for the end of August 2015. Through the Glass pipeline there is visibility of 80 touch points throughout the supply chain. This innovation gives the retailer insight into what is taking place in its extended network. Examples of information about partners that will be facilitated through this tool include information about processes used and changes in ownership. This information is necessary for the organisation to begin the process of identifying potential risks that the company may be exposed to through its network.

5.4.2.3. Process integration

Objective 3 was to evaluate the extent to which existing technologies, used in the South African fashion industry, facilitate process integration.

A tool that Company A has developed for the integration of the processes of its retail operation with those of its suppliers is Supply-IT. This online information-sharing tool enables suppliers to see the movement of stock, orders made by the retailer and to determine from this information when the retailer will require a replenishment of stock. Suppliers are then able to determine how to manage and plan their production lines in order to meet the needs of the retailer. The features of this desk-top tool also give suppliers flexibility to determine if they can produce the orders required by the retailer or not. This information is then communicated back to the retailer through Supply-IT.

The Supply-IT tool also serves as one that enables the retailer to communicate with its suppliers about disruptive events that may affect them. Using this tool, the retailer is thus able to send a notification to the supplier's Supply-IT dashboard.

“Our suppliers are supposed to log into the tool everyday so if there is a disruption the notification is placed on the tool and as soon as they log on they have to view the message and then click that they have read and understood it, in order for them to proceed and view their orders. So they always have to see the notification if it pops up” (Participant 7).

This virtual tool was identified as a more useful alternative to emails, which enables Company A to track the correspondence with its supply base and ensure that the supply chain and its processes are continuously improving.

5.4.3. Category 3: Network management

Objective 4 was to recognise how efficiently strategic relationships are presently coordinated in the complex fashion supply chain in South Africa.

The retailer maintains close and strategic relationships with its suppliers and other strategic supply chain stakeholders. The company views the relationships with stakeholders as partnerships, stating that the retailer's ability to continuously remain competitive both locally and internationally is an outcome of the quality of these partnerships. Stakeholders are located in countries such as China, India and South Africa. In order to develop and maintain these relationships, the retailer has integrated its systems with those of its strategic stakeholders, ensuring that there is transparency and visibility with its key stakeholders. The transparency of the relationships is such that twice a year, the retailer formulates and engages in open forums and workshops with its suppliers. These open forums give suppliers an opportunity to discuss any developments that they believe should be implemented to improve the competitiveness of the partnership. These types of open and transparent alliances further increase the quality of the partnerships between the retailer and its supply chain stakeholders, ultimately having a positive effect on the bottom line and the quality of the product delivered to final customers.

The responses of Participants about the types of relationships the company maintains with stakeholders were consistently focused on the value with which the organisation places on formulating good relations with its network of partners:

“So we have built long-term relationships with them and we tend to stick to the same external stakeholders based on the fact that we use the systems quite closely with ours” (Participant 7).

“I have been on supplier management for four years in my role within sourcing and I have been with the company for nine years. I have always recognised the integrity and transparency with which the company and its key suppliers operate... We can’t do what we do without our partners who are aligned to our strategy” (Participant 4).

5.4.3.1. Location of stakeholders

According to one respondent, local suppliers are said to have increased by 30-35% for the entire Group. This increase has been awarded to changes in the local and global economies and also to the growing movement towards more agile practices. Three reasons were identified for this movement: the devaluation of the South African currency, the increased speed-to-market, flexibility and responsiveness provided by local stakeholders and pressure from stakeholders external to the retailer’s supply chain:

- **Devaluation of currency:** It was noted that local, rand based suppliers were seemingly becoming more attractive to source from. The devaluation has made it easier for local suppliers to be more competitive in terms of price compared to their international counterparts:

“Three years ago when you were trading on R7 to the dollar it was quite difficult for a local manufacturer to compete. When you are sitting closer to R13 it becomes much easier” (Participant 4).

- **Increased speed-to-market, flexibility and responsiveness:** In addition, the drive for increasing local suppliers was also recognised as a strategic move towards heightening the organisation’s speed-to-market. It was noted by Participant 4 that the retailer is at times willing to pay more to local partners in order to experience the flexibility and responsiveness to market needs that such partners present as a result of their close proximity.

- **Pressure from other stakeholders:** Stakeholders external to the supply chain, including the government, have also contributed to the increase in local suppliers. Stakeholders such as the Department of Trade and Industry (DTI) and the South African Revenue Service (SARS) have put measures in place to encourage the competitive development of the South African Cut, Make and Trim (CMT) industry. These developments have been encouraged in order to increase the number of jobs created within the country. Furthermore, Company A has focused on initiatives to increase the production of cotton by local farmers within South Africa and has provided a market for the cotton produced by using it as inputs to manufacture the final products sold by the retailer.

While the retailer has a growing number of local partners, it still has a larger network of international partners as well, with the furthest situated in China. The lead time is therefore compromised due to the length of time it takes to ship products from international partners. An average of four to six weeks for delivery of products manufactured outside of South Africa was noted. The role of the retailer as the coordinator of this network has thus increased. The value of critical path management, in order to improve the network's ability to respond to changes regardless of the location of partners has also been enhanced. The importance of communication amongst supply chain stakeholders and pre-planning were also perceived by Participant 4 and Participant 6 as valuable:

“When you have eyes and ears on the ground you can visit that manufacturer, you can tweak and you can work more closely with them. But a lot of it comes down in every instance, communication and how much communication you are having upfront with regards to product availability, fabric commitments, to how quickly you can execute the product. Your lead time is only as good as your upfront communication and prep-work” (Participant 4).

5.4.3.2. Development of Supply base

Monitoring and developing the strategic supply base is very important for increasing the agility of a supply chain and for ensuring that the partnership between a retailer and its network of suppliers is continuously strengthened. In order to monitor the performance of suppliers, the retailer has some of the following initiatives in place:

- **Supplier grading project:** Using supplier grading tools, the retailer is able to monitor the performance of its supply base. It is also able to further capture this information and determine which suppliers are not performing up to standard. This information is then presented on Excel spreadsheets and reviewed monthly.
- **SEDEX:** SEDEX is a very useful platform for the retailer. It is used for the supplier selection process and for monitoring the performance of selected suppliers. As it is compulsory for all suppliers in Company A's network to be members of SEDEX, the information that they provide for their continued membership on SEDEX's database is also reviewed often by the retailer. Each year, suppliers are required to upload information such as their social and compliance audits, along with their government certifications and information about their operations. SEDEX also provides self-questionnaires that the suppliers are required to respond and update annually.

In some cases, suppliers fail to perform at the required standards. Participant 4 emphasised the need for the maintenance of transparent relationships with suppliers. This ensures that there is an open channel of communication for easier identification of the reasons for these shortfalls. In order to further strengthen the relationships the retailer maintains with its suppliers, as its partners, it ensures that targeted "*continuous improvement plans*" are established with strategic suppliers who are not performing. Strategic suppliers were recognised as those that have access the retailer's trade and design information and those that the retailer has more collaborations with through frequent meetings. If such suppliers are still unable to improve their performance, the retailer proceeds to review if it is beneficial for the relationship to continue. According to Participant 4, the reasons for underperformance vary from cash-flow problems to strikes within the supplier's facilities that may prevent the supplier from meeting orders. Underperformance is sometimes a result of the retailer increasing its orders to the supplier, without a clear recognition of the supplier's capacity:

"So a supplier is very rarely going to say to you, "You have given me too many orders, I only want 60% of what you have given me". They are going to see the orders and they are going to try. They want to do their best and they want to deliver the orders but maybe they are not capable of it" (Participant 4).

The retailer therefore, proceeds to develop both underperforming and high performing strategic suppliers through various initiatives. For example, Company A has established supply chain sustainability projects that require the retailer to work with its strategic partners upstream in order to increase their capabilities. While Participant 6 and 7 explained that the retailer generally expects its supply chain partners to be aware of the best industry practices, Participant 4 mentioned that the company does share articles and conducts courses and workshops with its strategic suppliers on issues such as improving agility:

“We run courses with our suppliers. When we do a quick response and when we are looking to improve the lead time, we would run those workshops with suppliers. We choose strategic suppliers to increase their learning” (Participant 4).

5.5. Theme 2: Attitudes and perceptions towards social media

Objective 6 was to deduce from the findings of an empirical study if there are opportunities for the adoption of social media in South African fashion industry supply chains.

In order to determine the potential for social media adoption in the organisation and its supply chain, participants were first asked if social media have been employed in various aspects of their departments and in their organisation’s supply chain. The findings showed that the retailer uses social media within its own organisation. Participants (1, 4, 6 and 7) whose positions required them to be in direct contact with the retailer’s supply chain stakeholders were further asked if they were knowledgeable of any social media usage by these external stakeholders. This inquiry into the retailer’s supply chain stakeholders initially showed that very few, if any, made use of social media. Some participants were not aware if their supply chain partners used social media tools. Logistics stakeholders such as Company B were recognised as users of the tools. However, other upstream partners were not immediately viewed as having social media pages:

“I don’t think any of them would. It’s generally factories, so I don’t think they would” (Participant 7)

“I would imagine so. I really don’t know” (Participant 4).

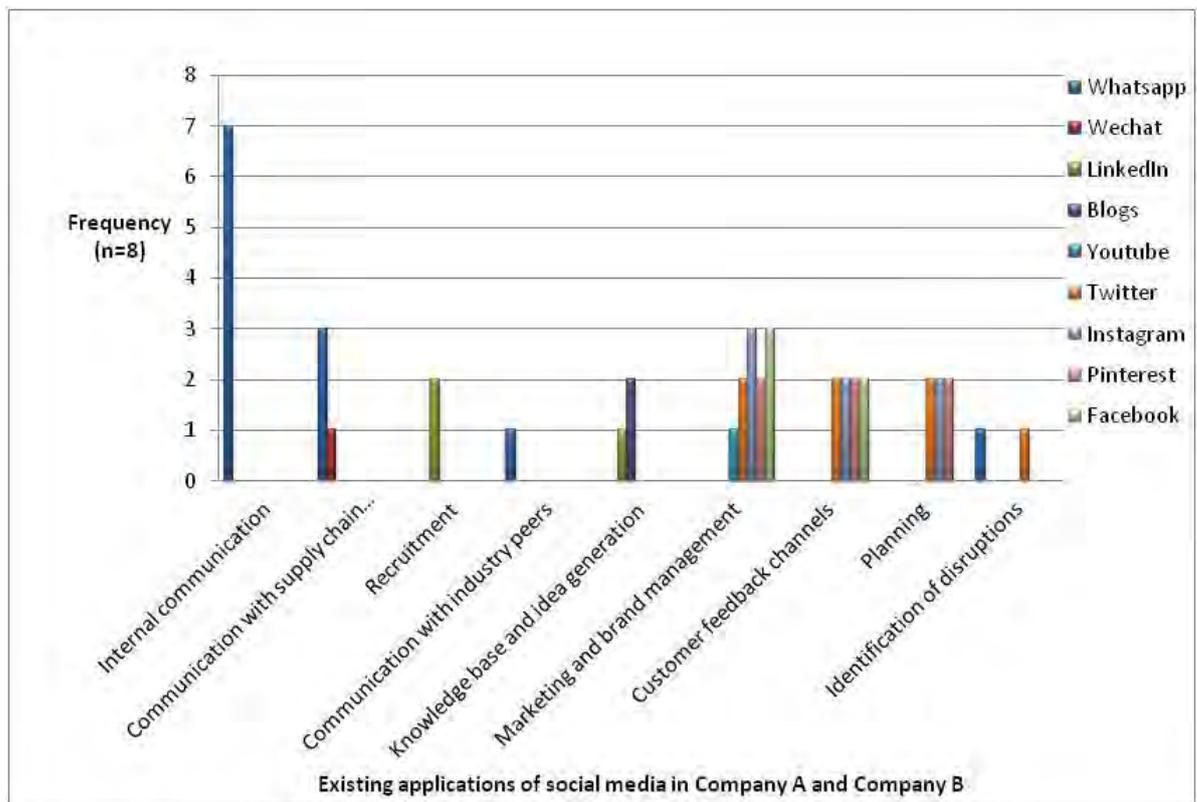
“Logistics partners do. Suppliers I don’t see the need for it. I don’t know. I have no idea” (Participant 6).

Probing further revealed that both the retailer and some of its supply chain stakeholders have implemented social media in their various firms. However, the types of applications and their uses varied amongst partners.

Social media currently have multiple roles in many of the retailer’s functional departments and are also used by other supply chain stakeholders. **Figure 5.1** shows the current uses of social media. For each use, the chart reveals the number of participants that identified the specific use. Social media applications are currently used for:

- **Internal communication:** Social media tools are used by Company A to facilitate internal communication. According to seven participants, Whatsapp, a social media messaging tool, is the most common application used for internal communication. This tool is frequently used by staff members in Company A. It is also a tool used by Company B. Whatsapp not only facilitates communication amongst team members in single functions but it is also used, in Company A, to enable cross-functional integration within the entire organisation.
- **Communication with supply chain partners:** Company A utilises social media applications to communicate with its supply chain stakeholders. Three participants identified that Whatsapp is used for this purpose. However, Participant 4 noted that WeChat is another communication tool that is recognised, by Company A’s supply chain, as an alternative. This is because WeChat is more popularly recognised in other countries. WeChat was particularly useful for communication with stakeholders in China.

Figure 5.1: Current uses of social media in Company A and Company B



- Recruitment:** Social media applications are also used for recruitment. Both Company A and Company B identified LinkedIn, a tool that connects professionals and companies, as a resource for searching for potential candidates for job positions. LinkedIn is used by Company A’s Human Resources department for recruitment of Supply chain and Logistics staff members.
- Communication with industry peers:** Company A also uses social media applications to interact with peers that are not necessarily stakeholders in the retailer’s own value chain but are also operating in the same industry. Participant 1 noted that through Whatsapp, the retailer and its peers are able to assist one another in responding to various situations that are common to their daily operations, such as import and border issues, without exchanging trade secrets.
- Knowledge base and idea generation:** Along with more formal methods of generating ideas and gathering information, Company A uses social media tools such as LinkedIn and blogs. Supply Chain 24/7 was noted as a regularly updated and useful blog. However, while this is so, Participant 1 argued that social media are not completely credible or reliable tools for gathering valuable

information to assist in improving the supply chain. The use of these is therefore, minimised

- **Marketing and brand management:** Social media applications are more commonly used for marketing and brand management purposes. This is so in both Company A and Company B. The Apparel Marketing department for Company A was the first to adopt social media applications in the organisation for business purposes. Participant 8 explained, *“Because fashion is an expressive thing and what you wear says a lot about who you are and social media is an extension of that”*. Tools such as Instagram and Pinterest are used as visually appealing applications for Company A to engage with its consumers. Company A’s Merchandise Director was noted as a well-known South African “design guru” with a large Instagram following from people who seek visual inspiration from his posts and travels. In addition, Participant 8 explained that social media are also used to create ‘hype’ for new products and trends. Company A and B both use Facebook for marketing. Participant 3 also mentioned that Company B uses YouTube for these purposes.
- **Customer feedback channels:** Social media tools are not only used by the retailer for advertising purposes. They are also used as customer feedback channels. Using tools such as Facebook and Twitter, final customers are able to communicate their opinions about the quality of products, services and experiences offered to them by the retailer. Participant 4 explained *“When you go online and you give your customer this open platform through Facebook, Twitter, to actually say what they want to say, whether it is complaining or delighting, you are in a very open platform conversing with your customer”*. In addition, tools such as Instagram and Pinterest further enable the retailer to engage with the consumer and receive feedback about trends before they are brought into stores.
- **Planning:** Social media are also used to determine consumer behaviour and potential responses to trends. Company A uses feedback from these channels to improve its understanding of when to sell and advertise particular product ranges, according to product and trend lifecycles, and also use these platforms, in conjunction with other more traditional channels, such as sales history, to determine the quantities in which to sell each product in order to maximise sales

to all consumer types and especially the company's main consumer segment: the mass market.

- **Identification of disruptions:** Social media were identified by Participant 3 as sources of information about disruptions. The organisation follows accounts on Twitter and has Whatsapp groups that involve country-wide organisational participants that communicate about disruptions.

Table 5.5: Theme 2- Attitudes and perceptions towards social media

Category	Code
1.Perceived benefits of using social media	<ul style="list-style-type: none"> -Ease of use -Quick and simple information-sharing -Responsiveness -Mobile convenience -Engagement with consumers -Flexibility -Adaptability -Improved performance -Management support
2.Perceived limitations of using social media	<ul style="list-style-type: none"> -Reduction in productivity -Time-consuming -Limited global accessibility -Limited awareness of social media tools for supply chain - Low security - Limited control of applications - Allocation of data - Need for policies to govern usage - Low credibility of knowledge base - Limited local expertise - Benefits function dependent -ROI not clear - Qualitative information not explicit

All the interview guides were designed to enable participants to identify any potential barriers and opportunities to using social media in their organisations and in their supply chains. Participants answered these questions drawing perspective from their current uses for social media, the needs of their supply chains and organisations, along with their general knowledge of social media tools. The major theme for this section was: Attitudes and perceptions towards social media. This was divided into two categories: perceived benefits of using social media and perceived limitations of using social media. Codes were identified for each of these categories, according to the responses given by participants. **Table 5.5** summarises the theme.

The categories and codes of this theme will be discussed in more detail in the sections that follow.

5.5.1. Category 1: Perceived benefits of using social media

As summarized in **Table 5.6** various codes were identified through analysing the transcripts: ease of use, quick and simple information-sharing, responsiveness, mobile convenience, engagement with consumers, flexibility, adaptability, improved performance and management support.

Table 5.6: Perceived benefits of using social media

Perceived benefit	Frequency (n=8)
Ease of use	2
Quick and simple information-sharing	1
Responsiveness	7
Mobile convenience	4
Engagement with consumers	3
Flexibility	2
Adaptability	1
Improved performance	6
Management support	6

5.5.1.1. Ease of use

Social media were noted by participants from both Company A and Company B as potentially easier to adopt. It was noted through the interviews that most, if not all employees have cell-phones, making it easier and less costly to adopt information-sharing social media tools available on mobile devices. In addition, many employees were noted to have had some form of experience with using social media, either through Whatsapp or for more personal social networking through platforms such as Facebook. Participant 3 from Company B estimated that at least 60 or 70% of employees in the company have used Facebook. Therefore, the respondent believed that adopting the technologies would be easier due to the limited training required and the ease of use of most of the social media platforms that participants were aware of:

“If I could get past the risk of information being available in the market, I would probably have used Facebook instead of an intranet, for example, because it just makes sense to me. I mean it’s simple, you don’t have to train anyone and off you go, you know everyone has used it before” (Participant 2).

5.5.1.2. Quick and simple information-sharing

In a comparison between Whatsapp and emails, Participant 2 revealed that emails are highly formal. Whatsapp, as a social media tool, was seen to allow staff members to quickly convey their messages using a simpler, informal platform. Through this comparison it was seen that participants preferred these types of informal interactions, especially for day-to-day updates and for disruptive situations that require more responsive and quick communication. Social media, with an emphasis on Whatsapp, were thus viewed as facilitators of quick and simple information-sharing needed for more agile and responsive communication amongst internal and external stakeholders:

“We have Whatsapp groups in which most employees are a part of. For quick communication we merely send messages on this group and this is automatically sent and available to everyone on the group” (Participant 2).

5.5.1.3. Responsiveness

Social media applications were noted as able to facilitate quick responsiveness in the organisation and in the supply chain. According to Participant 5, consumers from many regions communicated via social media about a defect in one of the products sold by

Company A. In the past, consumers would have merely returned the defective product. The QA team would have been required to inspect the returned products to identify the defect. However, although Participant 5 noted that the high level of competence of the QA team would have enabled the retailer to identify the defect and its source, the respondent noted that it would have taken a longer period for the organisation, as a whole, to quickly determine that this defect was common to all products of that type that were available in outlets nation-wide. The complaints on social media about the defective product enabled the organisation to quickly identify a pattern in the complaints. The company determined that the particular defect was a fault of a supplier. While the respondent strongly argued that Company A would have still detected the problem, without using social media, the retailer did however, recognise that the presence of social media applications speeded up the process:

“It gets in front of QA, it gets in front of merchants quicker than it would take for the time of a customer to return something to store and then that item if it is a defect item which needs to be brought to the attention of the supplier, to then be sent to Durban and for QA to engage with the manufacturer. So I think what it did was save time” (Participant 5).

In addition, Participant 8 explained that the use of Whatsapp groups for communication internally has enabled the company to improve its responsiveness in decision-making and daily activities:

“To be more agile and responsive in our work, we need social groups that allow us to use technology to include and allow people to move and make decisions” (Participant 8).

5.5.1.4. Mobile convenience

Another benefit of social media was the availability of some tools on mobile devices. This was especially preferred by staff members in the logistics department and those others who do not work often in their offices. Using social media tools such as Whatsapp, team members who are in office and out of office are able to continuously maintain contact and communicate. The mobile convenience of social media tools was also preferred by senior management who did not favour receiving emails on their mobile devices. Whatsapp is thus now used to facilitate updates on a functional level,

for cross-functional team dialogue and at times to communicate with external stakeholders. According to two Participant 1 and Participant 3, at the strategic management level, due to the number of emails that each of them receive on a day-to-day basis, it is difficult for them to quickly identify those emails that require immediate attention. Participants who would rather not have emails on their mobile devices still have immediate access to critical information sent through their Whatsapp. Participants felt that the mobile convenience of Whatsapp thus facilitated quick responsiveness to situations:

“We use it extensively in business throughout the Group. It (Whatsapp) is much more responsive than an email. For instance I do not have email on my cell-phone. It would drive me nuts. But Whatsapp you cannot beat in that sense and Whatsapp you can track. You can see if the expected reader has actually read the message or if it is delivered. So for me, Whatsapp is a game changer” (Participant 1).

“You can’t always be stuck in front of a PC. You want to have exception updates get sent to you not just through email because it becomes another email to track” (Participant 1).

“My personal perspective, emails are not very effective. I think that the number of emails that businesses and individuals receive each day is unfathomable, in terms of management, a couple of hundred a day, especially in the logistics environment which is intense and on the go” (Participant 3).

5.5.1.5. Engagement with consumers

Social media have allowed Company A to engage more with its final consumers. The interviews with the retailer revealed that the company has a customer profile that measures the level of engagement that the organisation can expect to receive on each of its marketing and brand management social media platforms. Similar to the consumer profile presented in **Table 5.3**, this profile reveals three consumer types and explains how each of these consumer groups engages on social media. **Table 5.7** summarises the social media usage by Company A’s consumers.

Participant 5 explained that Company A’s early adopters are also heavy social media users. These consumers enjoy the visual inspiration that they receive from Company A’s social media platforms and take pleasure in engaging with the retailer on

conversations to do with trends and designs. Early adopters are thus more inclined to using visual platforms such as Instagram and Pinterest, rather than Facebook and Twitter. While Instagram and Pinterest are given as more interactive platforms, the retailer has fewer followers on these applications than on platforms, such as Facebook, that attract more users from the mass market

Although few in numbers, these highly engaged consumers are also those that the retailer can expect to receive feedback from about new trends that the retailer is seeking to test. The retailer therefore, pitches ideas to these consumers to get their opinions on different trends. This gives the retailer and its supply chain an early insight into how other consumers might respond.

Table 5.7: Summary of social media usage by Company A's consumers

Consumer profile	Social media preference	Social media use	Level of social media engagement
Early adopter (mainly millennial)	Instagram, Pinterest, Twitter, Facebook	Heavy user	High engagement and feedback -seeking visual inspiration regardless of present spending power
Mass market	Mainly reference Facebook	Medium user	Medium engagement -may require incentives to increase engagement with retailer
Late adopter	Facebook	Light user	Low engagement -engagement only when a need has been identified

“It’s not about the numbers, it is about the engagement. It is about how much she has invested in this brand. How much she wants to talk to me...It doesn’t mean she is going to rush out and buy something today but oh my word does she appreciate the inspiration” (Participant 5).

The mass market and late adopters, on the other hand, are more inclined to use social media applications such as Facebook. While the retailer has more customers who follow them on this platform, the engagement from the mass market is not as extensive. In order to encourage more engagement and persuade these consumers to share their opinions, the retailer uses incentives, such as competitions. The late adopters are generally only inclined to engage with the retailer when they have identified a particular need to do so.

The qualitative information that Company A gathers through its engagement with final consumers further enables the retailer to be more sensitive and aware of the needs of these customers. This engagement gives the retailer insight into market responses to trends. According to the Participant 4, using social media, the organisation is able to quickly determine whether consumers have accepted various trends that the retailer has planned to stock. Previously this information could only be communicated through sales. This feedback from consumers is then shared with the organisation’s supply chain partners, giving detail into how much inventory to stock for various trends:

“I think it is fair to say you know sooner than you would have historically whether you got it right...I think therefore it gives you an early warning system which you can see whether something you have is gaining momentum then you can see whether to go a little bigger or go a little smaller but yes from that point of view. It just gives you global access” (Participant 4).

Participant 5 explained that the value that has been provided from using social media to engage with consumers is great, especially for Company A as a large mass market retailer. When referring to this value that has been given to the company since using social media tools to engage with customers, Participant 5 added, *“The scary thing is that it is probably what customers would be saying anyway, just we would not have had any idea that customers are saying”*. Similarly, Participant 8 also noted that, *“social media is, with a lot of things that are electronic these days, basically making explicit*

what used to be under the radar or what you heard someone say". Participant 8 further explained that in the past, such information would only have been visible through actually visiting retail outlets to have an understanding of how consumers were responding to products, however, social media has enabled easier gathering of this information. According to Participant 4 and 5, the market sensitivity and insight that social media have awarded Company A ensure that the retailer and its supply chain are better able to maximise on trends that their final consumers are demanding more of and have an early identification of those that fewer consumers are demanding.

5.5.1.6. Flexibility

According to participants (Participant 1, 2, 3, 4 and 7), social media tools with reference to Whatsapp are flexible. For example, when a situation arises, the application features enable users to create groups for discussion. These could be based on functional teams, cross-functional teams for projects or teams created to respond to specific crises. Using this group feature, users are provided with quick and simple information-sharing to keep groups of staff members informed throughout the period with which communication with the various team members is needed:

"The group functionality of it is critical to success because it is instantly updating to however many people you want and everyone is on top of their game, and it is agile. So I can now set up a group for issue x and everybody is on it and everybody can see the progress reports" (Participant 1).

5.5.1.7. Adaptability

Another perceived benefit is the potential that social media have to allow an organisation to adapt to changes. The organisation's Supply chain and Logistics department has gained flexibility and responsiveness since using Whatsapp as a communication tool. The insights that the Marketing, Trend and design, Merchandising and Resources departments have been able to gain about consumer responses and consumer behaviour have further enabled the organisation to adapt and to be more sensitive and responsive to the needs of consumers. Participant 2 thus noted that social media have been useful tools to use as the business expands:

“The biggest challenge in our business is that there are lots of changes and with the growth of the business we always need a tool to cope with that and it seems that social media are helping to support the growth of the business” (Participant 2).

5.5.1.8. Improvement of performance

Determining the perspectives of participants regarding the potential for applications to improve the supply chain’s performance allowed the interviewer to establish if there would be potential for the implementation of more tools in the future. Participants referenced their existing knowledge of social media and the applications that are currently in place. It was established that Whatsapp is a responsive and flexible information-sharing tool that is agile enough to be used during peak periods that require higher levels of performance and communication amongst teams (Participant 7). It was found that although there was a limited knowledge of other useful applications, those that were currently in place were helping the organisation to increase its performance.

Further responses showed that due to the volatile industry that the organisation operates in, Company A is focused on continually improving its performance and is thus open to implementing any tools that would facilitate this. However, while responses to the possible implementation of social media to improve performance were mostly positive, one respondent did not see there being any potential benefits to the supply chain. While participants were unclear of other tools that could be implemented in the organisation’s supply chain, seven participants believed that social media could benefit the supply chain in some way.

5.5.1.9. Management support

Out of the seven Participants from Company A that participated in the study, five had an explicit positive inclination towards the use of social media in the supply chain. Four of the five participants in Company A that were supportive of the use of social media hold management positions. The five participants favoured the adoption of social media applications that would benefit the organisation and its supply chain:

“I think so. If it is intuitive and adds value and simplifies what we do and hopefully saves money then yes” (Participant 1).

Participant 3 from Company B, as a representative of Company A’s supply chain partners was also supportive of the use of social media in the supply chain

“We haven’t yet adopted a strategy around it but I personally see the potential benefits, yes” (Participant 3).

However, one participant from Company A did not see the potential for social media for the supply chain:

“I wouldn’t be sure what the purpose of it would be. I would have no idea why people would want to be on social media at a department like this one. I have no idea” (Participant 6).

5.5.2. Category 2: Perceived limitations of using social media

While the participants were mostly in favour of the use of social media to improve their supply chain performance, each respondent mentioned various limitations that they predicted would affect the quick adoption of social media in their various departments. **Table 5.8** gives the types of limitations identified by Participants. The frequencies given reflect the number of participants who recognised each limitation.

Table 5.8: Perceived limitations of using social media

Limitation	Frequency (n=8)
Reduction in productivity	4
Time-consuming	2
Limited global accessibility	2
Limited awareness of social media tools for supply chain	7
Low security	3
Limited control of applications	2
Allocation of data	2
Need for policies to govern usage	3
Low credibility of knowledge base	1
Limited local expertise	1
Benefits function dependent	1
Return-on-investment not clear	1
Qualitative information not explicit	1

5.5.2.1. Reduction in productivity

Before being implemented in business, social media tools were mainly used for leisure purposes. While many of these tools have become valuable for business, especially for marketing, concerns of how the implementation of social media tools in other departments would affect the level of productivity were still present amongst participants. The benefits of using Facebook for internal communication were visible enough for one of the companies in the retailer's supply chain to explore. However, due to the platform's commonality as a personal social networking site, the potential for employees to be distracted during their use of the medium during work hours was a concern. Four participants thus viewed social media as tools that could potentially reduce the level of productivity of employees, if there were unclear rules to direct and manage their use:

"We frown upon social media being used in the workplace generally. People get side-tracked so it is a difficult one" (Participant 1).

"... The danger that we see with social media are that there is a blur between personal and work related, so we would still see it being necessary to keep a fairly distinct separation between the two" (Participant 3).

"What information is being shared? Can we ensure that it is being used correctly and not being used to send a message saying that your favourite football team won?"(Participant 4)

5.5.2.2. Time-consuming

Participants implied that social media are potentially time-consuming tools. Participant 1 felt that with the limited number of hours that employees are given for work purposes, increasing the number of social media tools that are used could distract employees from their core jobs, further reducing productivity. This therefore raised the question for how social media applications would be integrated into the jobs of staff members, as those outside of messaging tools such as Whatsapp were largely regarded as time-consuming:

"One of the other companies was looking at taking Facebook, because you can create your company intranet. But then people can get diverted anyway and sit for 3 hours in a row and it gets quite sad that people can sit on social media for that long. There is only

8 hours in a day to work. It's a tricky one...how do you integrate it whilst still focusing on work?" (Participant 1).

With social media applications having been branded as valuable and vital tools for marketing and brand management, Company A's Marketing department was faced with a similar dilemma of deciding how to control the time that employees spent managing the company's social media pages. While Participant 8 explained that there was a need for a separate digital Marketing team for the management of the apparel social media pages, Participant 5 noted that for the Homeware social media pages, the organisation expanded the jobs of a few existing employees to include an hour of managing the social media pages. This expanded the skills of employees and eliminated the potential expenditure on the employment of new staff members to administer the new social media platforms. The decision then allowed the organisation's Homeware department to slowly integrate social media tools into its existing marketing communications strategy, without committing too many resources into the modern media channels that were still in their initial stages of adoption in the South African consumer market:

"If you were a marketer sitting in my seat three years ago, for example, and you were having a presentation by a supplier or a social media guru or whatever the case might be if I was listening to them I would have a full-time blogger sitting in my business. I can tell you for free that is not a wise way for this business to spend its money" (Participant 5).

5.5.2.3. Limited global accessibility

According to Company A, social media tools are geographically sensitive. One respondent mentioned that while Whatsapp is a popular medium for communication in some countries such as South Africa, this is not so in other countries. Other social media tools could be deemed more popular for communication in these countries. For example, Participant 4 stated that the organisation uses WeChat to communicate with suppliers in China. This is because Whatsapp is not a common application in that area. This reveals the limitations that social media have towards possibly being used by a global and complex supply chain network, for communication amongst international stakeholders. Emails were noted as being more beneficial in that regard due to their popularity and extensive usage across the globe. While Company A's current practice is to adapt to the tools that each country uses, Participant 1 noted that in order to be more

functional social media tools for business should be widely applicable to more nations as emails have become:

“I have a very good friend who lives in Denmark and we communicate via Facebook messenger so I said to him, “This is a bit of a mission, can’t we just Whatsapp”, and his reply was “What is Whatsapp?” And you think how can that be? How can Denmark, which is in the first world, not know about Whatsapp? Email is wide. Everybody has email. The whole world uses it” (Participant 1).

“The thing is because you travel and you interact with your suppliers often they would say “Download this. It is the one we use in China”. “Download that it is the app we use in India” (Participant 4).

5.4.2.4. Limited awareness of social media tools for supply chain

In order to determine the potential for social media to be adopted in the organisation’s supply chain, it was also necessary to establish the level of awareness of the tools that are available for use in each of the participants’ departments. In response to the question, *‘Are you aware of any other social media applications that can be used in your department?’*, participants said:

“I have no idea. People have Facebook accounts but it is not work related” (Participant 6).

“I know about Facebook but it is not something that one would use for business purposes. It is mainly for personal use” (Participant 2).

“Not that I can think of. You could chat to the marketing guys maybe but not that I can think of” (Participant 4).

Although management supported the use of social media, the responses show that there is limited awareness of which other social media tools could be useful to the supply chain besides Whatsapp. In addition, the term ‘social media’ is largely associated with the social networking tool: Facebook. While it was noted that Company B had considered using Facebook as an intranet, some Participants from Company A felt that this tool is not useful for business. The last response further shows that social media are still more popularly viewed as marketing applications.

5.5.2.5. Low security

A major concern amongst participants was the potential low security of social media tools. Participant 1 noted site security and protection as an important aspect of its business. Maintaining such security ensures that the retailer is protected from any form of theft, violation or misuse of vital business information that contributes to its competitive advantage in the market. As a result of the increase of cyber crime, the retailer has thus executed strategies to ensure that its firewalls and network systems cannot be accessed or controlled by anyone who is not authorised. One such strategy that Company A has installed is the implementation of restrictions on who can access the internet within the retailer's premises. The restrictions employed ensure that only authorised persons or staff members are able to gain internet access. Further restrictions are in place to make certain that those who have been authorised to access the internet do not abuse this privilege. In addition, as a 3PL provider to a number of businesses, Participant 3 emphasised on the value that Company B has to place on ensuring the protection of the information it shares internally regarding its clients.

Reflecting on the extent and significance of these security measures led participants from both Company A and B to question the level of security that social media tools would provide their businesses and networks. The general concern amongst these participants was how security would be maintained if their organisations and supply chain partners started to use social media tools to share more critical information. For example, Company B was noted to have considered using Facebook as an intranet however; the level of security provided by the platform was put under scrutiny. The security element thus outweighed the potential benefits that the organisation could have derived from the platform. Participants (Participants 1, 2 and 3) were therefore in favour of tools that would enable them to have a greater control of who is able to access the information that is shared:

“You have site security...That is a problem and if you can't control that firewall to make sure that the right people are in and the wrong people are out then you have a risk and that for us is an issue” (Participant 1).

“Just from a confidentiality perspective, because we serve multiple customers, the information that we share internally can't be in a public domain” (Participant 3).

Tools that allow the supply chain to maintain its focus on protecting vital information were more favoured compared to those that exist on more public platforms, such as Twitter. However, the distinction was largely subjective. Of the participants that mentioned security as a limitation, one viewed Whatsapp as a more private tool. However, although this was the perspective of one respondent (refer to Statement 1), another respondent (refer to Statement 2), mentioned a lack of security as a limitation of using Whatsapp. Statement 2 was also given as an explanation for why Whatsapp has not been adopted by more companies and people across the world, compared to emails which are now viewed as more traditional forms of communication:

“A Whatsapp group is only meant for people within the company so we do not think that people outside the company can access the information on this group because it is a private group and not on a public platform” (Participant 2) [Statement 1].

“I suppose there is an uncomfortableness [sic] with a Whatsapp solution because there is very little security and transferability” (Participant 1) [Statement 2].

5.5.2.6. Need for policies to govern usage

While participants were mostly positive about the benefits that social media could offer the supply chain, it was seen to be important for there to be policies to direct and manage the interactions that take place on the sites. With issues such as a possible decrease in productivity of employees and the potential risk of the security of vital information for example, through the use of public platforms, a need for some form of control of how employees and stakeholders conduct themselves on these media was identified. Through such policies, employees would be directed as to what kind of information is permitted on the tools implemented for the improvement of the organisation and its supply chain.

However, Participant 2 also noted that implementing rules could reduce the willingness with which employees use these tools. The need for policies was recognised as mainly needed for sites that were more public. According to Participant 2, Whatsapp was regarded as a more private and less risky site that the organisation had not identified as requiring explicit rules:

“There must be a policy to govern the use of social media so as to avoid the abuse of social media... However, putting these policies in place may be a barrier to the use of

social media in the work place because people may become less interested in using it because of the rules. But we cannot use social media without such policies” (Participant 2).

5.5.2.7. Low credibility of knowledge base

While it was noted that some social media applications such as LinkedIn and blogs are referenced for gaining information about supply chain best practices and generating ideas, Participant 1 felt that in this regard, social media were not entirely credible sources of information. The respondent therefore, preferred more traditional sources of information such as academic articles. Participant 1 viewed social media platforms as largely based on subjective information and bearing very little insightful information for the supply chain:

“But I find LinkedIn a little content scarce. It’s a lot of stuff but we have used LinkedIn in instances where we wanted to review the different ways of cycle counting in a distribution centre, if you want to intervene into your production process. A question like that on a specific group, you would get one hundred answers in a day. Out of them, x %, a low percentage, would really add value and question things you do. It is definitely a forum but I don’t know if it has hit the spot” (Participant 1).

5.5.2.8. Limited local expertise

Participant 5 noted that there are very few credible social media experts in the local market. The respondent explained that the adoption of social media applications has been aided by collaborative efforts that include industry and organisational peers. The home ware Marketing division, for example, has had a lot of assistance from the apparel Marketing department, which was the first to adopt social media in Company A. However, the respondent noted that many South African industry peers who were implementing social media in their businesses were all still learning to understand and capitalise on their benefits but none could yet be referred to as experts:

“So there is a lot of collective learning and collective efforts but I think in all honesty I am very weary of people who pitch themselves as experts on that subject” (Participant 5).

5.5.2.9. Benefits function dependent

In response to the question, *‘Do you think that all departments in your organisation could benefit from using social media to communicate?’* it was found that participants were mostly confident that social media could facilitate internal communication. This was also illustrated by the retailer’s use of Whatsapp and Participant 3’s consideration of using Facebook for Company B’s internal communication. While social media tools were recognised as potentially more effective methods of communication, Participant 1 noted them as possibly beneficial to all departments other than Finance. This respondent thus viewed the use of social media as valuable to particular functions:

“100%. I mean maybe outside of finance but they don’t need that. It is such critical desk driven information” (Participant 1).

5.5.2.10. Limited control of applications

Participant 1 mentioned that continuous developments in technology and in platforms may reduce the total ownership of applications that supply chain partners adapt in their facilities. One of the concerns posed by this respondent was the lack of control of these changes. An example was given of a recent movement towards the substitution of hand-held scanners used in distribution centres with more cost-effective mobile devices. However, continuous updates of technology, including hardware and software, along with a predicted lack of consultation by mobile device unit and software providers such as Apple before these upgrades, was identified as a risk. Another limitation was the short lifespan of units and of batteries of mobile devices. These were recognised by the respondent as potential limitations that could enable the retailer to question the feasibility and extent with which investments could be made on implementing these technologies. However, a preference for Android devices compared to those of Apple operating system, iOS was identified:

“So all of those things say, how much do you want to develop on there or how much do you need to develop? It can be on-the-go but how much can you rely your business on there? Which makes Android possibly a better option. It is more open to your control than somebody else’s control” (Participant 1).

In addition, Participant 8 explained that technological developments meant that Company A's Marketing department had to modify its strategies to adapt to these changes:

“One moment we can post and gather fans for free on Facebook and the next moment we have to pay to reach our own fans” (Participant 8).

5.5.2.11. Allocation of data

As Whatsapp was acknowledged as a more responsive and effective tool for communication, users in the Distribution Centre have been permitted to utilise the wireless internet (Wi-Fi) available in the organisation. This was done to ensure that more employees, particularly the management team, have access to Whatsapp when they are on the retailer's premises. However, when users are not on company territory, they have to rely on using their own data in order to access important information that may be communicated to them or to teams through Whatsapp. Cell-phones were not identified as part of the fringe benefits offered to employees. This posed concern as to how the organisation could allocate and manage the use of data, if using social media for supply chain communication and information-sharing became compulsory. A possible lack of control of how individuals would use data if it was allocated as a fringe benefit to employees was thus also acknowledged. These concerns thus were noted as making short message service (SMS) technology more favourable compared to social media because of the ability for users to still receive messages even when they do not have internet access or airtime in their mobile devices:

“I think the only danger with social media, relative to SMS or say Whatsapp is that not all the people in our organisation will have data on their phones. So I suppose that would also limit Whatsapp. For example, SMS is still a good technology because everyone has a cell-phone” (Participant 3).

“So in the building you are on our Wi-Fi and you can keep up-to-date on the conversations and issue logs but outside if the guy doesn't have data, he doesn't have data and it is a serious obstacle” (Participant 1).

5.5.2.12. Return-On-Investment not clear

The Marketing department for Company A was the only one that appeared to have a clear budget for social media communication. Although the allocated amount for social media are only 1% of the total budget that the department has for its marketing strategies, the unit mentioned that it still battles to give a concrete argument for this expenditure to the Finance department. This is because the ROI is not currently measurable or quantifiable as most of the benefits that the department derives from this communication are qualitative. According to Participant 5, the inability to determine how much profit has been generated from social media expenditure thus also means that the department is unable to have a substantial budget increase approved to facilitate this engagement:

“You can’t attach it to a rand value, you can’t say well I spent R100 000 on a social media campaign and actually look at generated 2.4 million in sales or 5.6 million” (Participant 5).

5.5.2.13. Qualitative information not formalized

Participant 8 emphasized on the need to formalize information gathered from social media. According to the respondent, the qualitative nature of information gathered from social media tools used to engage with consumers does not explicitly give enough detail for Company A to fully and exclusively rely on for planning purposes. Participant 8 explained:

“You could put a grey coat on social media and you could get feedback “Love that coat, that coat is awesome, where can I get it?” It’s qualitative information and it is not saying that I need five of those in Pavilion stores” (Participant 8).

Participant 8 thus noted that in order to be useful, a choice regarding the extent with which social media engagement should be used to influence the decision-making processes for demand forecasting should be made. In addition, Participant 8 also explained that the manner in which this information is analysed and evaluated should be formalised in order to reflect clearly on the contexts with which these engagements take place.

5.6. Conclusion

Thematic analysis was used to identify categories and codes applicable to the data collected by the researcher. These were organised under the two themes: Current agile practices and Perceptions and attitudes towards social media. The findings showed that the retailer has implemented agile practices into its supply chain and is in a process of improving these. In addition, it also showed that Company A has a number of ways in which it ensures that its supply chain is sensitive and responsive to market changes. The company has implemented various strategies and technologies to enable integration with its stakeholders, in order to be more agile. Examples of innovations are the Glass Pipeline and Supply-IT. In addition, Company A has implemented various social media in its facilities. Whatsapp and WeChat were tools noted as used in the retailer's operations and supply chain. Participants noted several benefits of using the tools currently implemented in their organisation and also noted other potential benefits to be derived from using more social media tools. However, there were potential barriers and limitations of using social media that were identified by participants.

CHAPTER SIX: DISCUSSION

6.1. Introduction

Chapter Five presented the findings from the empirical research that was conducted for this study. This chapter will discuss these findings in conjunction with the literature reviews presented in Chapters Two and Three. The objectives of the study were used to guide the discussion.

6.2. Objective 1: To assess the industry's current sensitivity and responsiveness to market changes.

In order to be agile and competitive, a supply chain needs to be more responsive and aware of the needs and wants of final consumers (Barve, 2011: 326; Barnes and Lea-Greenwood, 2010: 760; Bhardwaj and Fairhurst, 2010: 167). To ensure this market sensitivity, it was revealed in **Table 5.3** (Chapter Five) that Company A has a detailed knowledge of the types of consumers that it serves. The mass market is the largest contributor to the retailer's profits. In addition, the retailer also describes itself as a mass market retailer, although it also seeks to serve the smaller markets: early and late adopters. This clear understanding of the types of consumers the retailer and its supply chain serves ensures that the organisation and its network are better positioned to maximise on the sales from all its consumer types and especially its main consumers: the mass market.

Christopher, Lawson and Peck (2004: 368) add that as a result of the short lifespan of fashion products, it is important for a supply chain to have a clear and accurate identification of the period with which profits are expected to be maximised. These authors explained that penetrating the market when a trend or product has reached its maturation level in its lifecycle may mean that there is not enough time for a retailer to generate profits from that product or trend. Speed-to-market is therefore, very important. Company A stated that it takes eight weeks from concept to store. **Table 5.3** also showed that the Company A puts a lot of emphasis into understanding where each of the consumer types it serves are situated on a product or trend lifecycle. This information enables the retailer and its supply chain to be better prepared to provide a

higher volume of products in its outlets when its mass market is demanding the trends or products. This ensures that the retailer plans its stock based on the most accurate predictions of demand.

Mihm (2010: 57) states that in order to be more competitive and profitable, organisations should distribute the trends that they identify in the correct quantities that are required to meet the varying demands of outlets. Through further segmenting its three types of customers according to geographical locations and demographics, Company A is able to determine the needs of its three consumer types and better forecast the demand for each of the trends and the quantities of volumes that should be delivered to each of its outlets, nation-wide. This reveals that the retailer and its supply chain are sensitive to the fact that the demand for trends, for example by its mass market, will differ according to location and demographics.

Due to the high volatility of the fashion industry and the short lifespan of products and trends (Bruce and Daly, 2006: 330), early identification of trends is important. Skov (2006: 774) notes fashion shows as great influencers of the products sold in stores. However, Participant 4, from Company A, identified other sources that influence the retailer. The findings showed that Company A has several ways in which it determines global trends. Some of the ways that were identified were travelling, attending lectures, reading articles and trend websites and listening to the opinions of global trend masters. Another important aspect of Company A's trend capturing process is the acknowledgement of the role that suppliers and other supply chain stakeholders play in the determination and forecasting of trends. Company A thus collaborates with its suppliers to determine trends. Sensitivity to global trends is a system-wide goal for Company A. This shows an end-to-end sensitivity to the needs of final consumers and an open channel of communication amongst stakeholders. According to Linton (2014: 3), this type of communication is valuable for a supply chain in such a volatile industry, as it facilitates responsiveness and flexibility to changes and also enables the supply chain to have more collaborative efforts towards identifying opportunities in the market.

Another reflection of the end-to-end sensitivity of Company A's value chain is the outsourcing of E-commerce deliveries to Company B. This revealed that Company A was aware of the growing market for online purchases and needed to restructure and increase its number of partners in order to be more sensitive and responsive to this new

market. In addition, Company B, as a bulk deliverer, had to reposition itself in order to improve its capabilities for delivering the smaller packages for E-commerce customers. The responses of this E-commerce 3PL revealed that this market sensitivity was not limited to the focal company. This further shows the level of responsiveness that Company A's partners have towards market changes.

In order to further increase its sensitivity to the market, Company A has a number of methods and channels to enable it to gain a better understanding of the profiles of its consumers and the types of global trends that the South African market will be attracted to. In order to better serve customers of the fashion industry, a focus on determining the behaviours of consumers of the industry products is necessary. Through this understanding companies that operate in this volatile business are better able to predict trends that the consumers of their products would accept and improve the system-wide accuracy of demand forecasts for each of these trends. In addition, a value chain's sensitivity to market changes can facilitate the early identification of alterations in the purchasing behaviours of consumers thus enabling the supply chain's quick responsiveness to the needs of consumers and increasing its speed-to-market as compared to competitors. Using feedback channels such as E-commerce, point-of-sale information, analysis of product returns and social media, Company A is able to have an insight into the actual responses that customers have towards trends that are delivered in stores, along with an overall perspective of consumer response towards the quality of products and services delivered to them by the retailer and its network of supply chain stakeholders.

Company A and its network of partners therefore have a high level of sensitivity and responsiveness to the needs of the final consumer.

6.3. Objective 2: To identify the level of virtual integration of stakeholders in the South African fashion supply chain

Virtual integration was identified by Harrison, Christopher and Van Hoek (Power, Sohal, and Rahman, 2001: 249; Ngwainbi, 2008: 41) as a component of agile supply chains. According to Wang, Tai and Wei (2006: 41), virtual integration is '*the substitution of ownership with partnership by integrating a set of suppliers through information technology (IT) for tighter supply chain collaboration*'. Although Company

A has taken the position of coordinating its own supply chain, Participant 4 from the Resources department emphasised that the organisation views its supply chain stakeholders as its partners and valuable contributors to Company A's competitiveness. The respondent noted the value of transparent relationships with its stakeholders. The organisation facilitates this transparency through strategies such as information-sharing. Information-sharing is an important element of agile supply chains, as it facilitates flexibility and responsiveness. Participants noted that having valuable information across the supply chain is imperative for Company A and its stakeholders to have transparency and visibility. As a result, Company A has put more emphasis on improving information-sharing and also ensuring that its supply chain network systems are integrated. A collaborative and integrated system called Supply-IT is an example of the types of technologies that Company A has implemented for information-sharing with its stakeholders. In addition, the extent of Company A's network integration is such that the retailer and its strategic partners collaborate in the trend capturing processes. The retailer further shares knowledge of best practices with its suppliers and all parties are open to learning from one another. However, while the Company A has integrated systems with its suppliers, the extent with which these integrated systems facilitate real-time information was not established.

Advancements in technology have facilitated virtual integration amongst stakeholders in a supply chain (Mahdavi, Mohebbi, Zandakbari, Cho and Mahdavi-Amiri, 2009: 727). These advancements are also apparent in Company A's methods of information-sharing. Mahdavi *et al.* (2009: 727) state that virtual integration has been enabled by the internet. Company A and all its supply chain stakeholders have access to the internet and thus use electronic tools for information-sharing and integration. These have enabled Company A to connect with its globally dispersed stakeholders. Company A and its network use both traditional (emails and EDI) and unconventional information-sharing tools (Whatsapp and WeChat). The use of both traditional and conservative methods of communication along with more modern and unconventional internet-based tools for communication within the retailer's supply chain show the level of openness of the retailer and its supply chain stakeholders to adopting new tools.

The literature review in Chapter Two showed authors such as McIntire (2014: 181), Penfield (2008: 5) and Harrison and van Hoek (2011: 125) discuss the importance of

end-to-end visibility to extended and complex supply chains. With stakeholders situated in countries such as China and India, Company A has an extended supply chain. This makes the organisation vulnerable to unforeseen events. For example, in Chapter Five, findings from the interview with Participant 7 showed that Company A was affected by the Tianjin port explosion. The extension of supply chains to include indirect suppliers also exposes these complex networks to more unforeseen events which can result in delivery delays. Although the four participants involved in the retailer's supply chain department (Participants 1, 4, 6 and 7) provided varying answers in response to whether the organisation is aware of all its extended supply chain partners, the retailer has implemented technologies to improve its visibility of all direct and indirect supply chain stakeholders and their operations. These initiatives are not only there to protect Company A from unforeseen events involving suppliers, but they are also present to ensure that the retailer is aware of who is involved in its extended supply chain. The initiatives have also been implemented to eliminate waste operations and encourage more value creation throughout the complex network. The Glass Pipeline is a new technology that was developed by the retailer in order to facilitate this. The technology was implemented in September 2015. This shows that the retailer has maintained its aim for continuous improvements by having recent technological developments to increase the performance of its value chain.

Company A therefore, has a high level of virtual integration with its supply chain partners and has a continuous drive towards ensuring that it improves this integration. While responses towards the availability of real-time information were mostly vague, Company A showed that it is dedicated to continuous improvement. With new initiatives such as The Glass Pipeline, this shows that the organisation continues to find creative and novel ways of improving its operations and those of its partners. In addition, the partnerships that the retailer shares with its network show that Company A's value chain is highly integrated and committed towards end-to-end strategic improvements.

6.4. Objective 3: To evaluate the extent to which existing technologies, used in the South African fashion industry, facilitate process integration.

The seamless integration of processes and visibility of product movement ensure efficient inventory management (Heaney, 2013: 2; Katunzi, 2011: 105). These are necessary to achieve flexibility and responsiveness in agile supply chains. Company A involves its strategic suppliers in a number of its processes. One process necessary for product design is the trend capturing process. According to Participant 4, Company A and its suppliers collaborate to determine the needs and wants of consumers. This early involvement of partners ensures that there is transparency and visibility necessary for the organisation and its stakeholders to manage inventory efficiently and to facilitate speed-to-market. In addition, the retailer has open channels of communication between merchants and stakeholders to ensure that suppliers are aware of slow-selling trends in order to stop their production, reduce the volumes produced or hold stock for it to be sold at a later period. The two technologies mentioned in the previous section, The Glass Pipeline and Supply-IT were distinct examples of technologies the company uses to ensure visibility of processes. Using the Glass Pipeline, Company A has visibility of the processes and operations of its direct and indirect suppliers. Using this tool, Company A also ensures that waste is reduced throughout the value chain. Supply-IT is another tool that was identified by Participant 7 as useful for transparency of processes. Using Supply-IT, the retailer and its suppliers are able to have visibility of inventory as it moves across the supply chain. In addition, this communication tool also allows the suppliers to better determine the replenishment needs of Company A. These technologies therefore, enable the end-to-end integration and visibility of processes.

6.5. Objective 4: To recognise how efficiently strategic relationships are presently coordinated in the complex fashion supply chain in South Africa.

Managing complex and extended supply chains has become the norm in the globalised environment. In addition, as companies move towards focusing on their core competencies, the outsourcing of non-core competencies has further extended networks (Supply Chain Risk Leadership Council, 2011: 4). For example, after developing a new online store, Company A outsourced its E-commerce deliveries to Company B thus extending its network of suppliers. Company A's supply chain maintains the modern

trend of complex networks as it includes partners in countries such as China and India. The retailer identified the need to manage and coordinate its value chain and thus recently took the position of network orchestrator. Christopher, Lawson and Peck (2004: 371) acknowledge this movement towards focal organisations having a greater role in their value chains as a trend that is increasing amongst complex networks. According to Participant 7, the retailer's new position has been beneficial in ensuring the efficient management of the network and protecting the retailer from unforeseen events that may affect lead times.

Company A, as the orchestrator of its value chain has encouraged the development of transparent and strategic relationships with its suppliers. Through integrated systems with strategic suppliers, Company A has further strengthened these relationships due to the mutual and shared investments made to improve the alliances. Furthermore, Participant 4 explained that Company A does not just view its supply chain stakeholders as mere suppliers, but the organisation recognises them as partners with strategic roles which contribute to the retailer's success. This image of the success and competitiveness of Company A as a result of system-wide efforts thus shows the value with which the focal company places on its stakeholders. Company A therefore, leverages strategic suppliers to also grow as the retailer expands. In order to do this, the retailer shares best practices with its strategic suppliers and holds workshops and open conversations with them to encourage collaborative efforts towards the improve of their performance and the improvement of the entire system.

6.6. Objective 5: To assess whether there is a perceived need to improve agility of South African fashion industry supply chains

For each of the above objectives, participants mentioned or implied the need for improvements. According to Participant 6, while the retailer is responsive to the needs of its customers, the retailer is yet to reach the standards and benchmarks for agility that have been set by international retailers, particularly European ones. Furthermore, Participant 4 explained that there is a continuous focus between the Company A and its supply chain stakeholders to improve their agility. Participant 4 explained that the increasing competition for the local market share has heightened the pressure for Company A and its partners to improve their agility in order to maintain their strategic

position in the market. Participant 4 also identified Zara as a competitive agile retailer and benchmark for quick response. Zara was also noted in the literature review as a focus or example used by many studies that have been conducted on supply chain agility (Mihm, 2010; Birtwistle, Siddiqui and Fiorito, 2003; Barnes and Lea-Greenwood, 2010; Bhardwaj and Fairhurst, 2010). Company A and its partners were thus noted to be investing more into improving their system-wide agility.

Another aspect of agility that participants identified was the need to improve some tools used for communication. According to participants (Participants 1, 3 and 7), emails, for example, are used commonly for communication about disruptions and at times for coordination of responses to disruptions. The participants noted that emails were not suitable for communication during situations that require increased responsiveness. Several tools were thus identified as currently used as alternatives for emails. Supply-IT was mentioned by Participant 7 as one such tool for communication with suppliers. The tool was deemed more useful for communication with suppliers about disruptions because all suppliers are required to log into the tool every day. In addition, when notifications of critical information are sent, the tool ensures that suppliers cannot proceed to view orders unless they have viewed the notifications.

Another more commonly identified tool is the social media messenger application, Whatsapp. Participants commonly compared the effectiveness of this tool to that of emails. Of the six participants (Participants 1, 2, 3, 6, 7 and 8) that mentioned emails in their responses, five (Participants 1, 2, 3, 7, 8) compared them to Whatsapp. The comparisons showed that this social media tool was more favoured as a responsive, flexible and adaptable tool. Participants therefore implied that there was a need for new technological developments in the supply chain in order to facilitate better responsiveness. Participant 1 also gave the impression that there was a need for more tools that can facilitate real-time information-sharing amongst stakeholders. The Participant noted social media as tools that could potentially facilitate this.

Institute of Logistics and Transport (2003: 254) identify various time factors that are important to agile supply chains: time-to-serve, time-to-market and time-to-react. However, Participant 3 also explained that the time factor is not particularly prioritised in the South African market, especially when it comes to deliveries. The respondent thus implied that there is a need for the improvement of this aspect of value chains.

6.7. Objective 6: To deduce from the findings of an empirical study, if there are opportunities for the adoption of social media in South African fashion industry supply chains.

6.7.1. Technological developments

Insight into how often the organisation introduces technology enabled the researcher to establish the potential for social media to be implemented as new technologies for internal and external integration. Responses thus gave the impression that improving technology is an organisational-wide initiative. The findings showed that Company A has an on-going initiative to improve the technologies it uses. Its recent implementation of The Glass Pipeline to facilitate end-to-end visibility was an example of this. Furthermore, the organisation's use of the social messenger tool, Whatsapp, for cross-functional integration and its use of WeChat for communication with suppliers in China, also revealed its inclination towards unconventional but effective tools for communication. Responses from Participant 3 from Company B also showed that the 3PL has a similar culture.

Company A, as the focal company, has an innovative organisational culture that enables the retailer to constantly improve its operations through introducing new technologies and this culture also extends to the organisation's supply chain stakeholders. This further gives an impression of how these companies would respond to the implementation of beneficial social media tools for improving supply chain agility. The findings showed that Company A is open to the implementation of any type of technology as long as it proves beneficial for the improvement of operations.

However, although Company A constantly introduces new technologies to improve its operations and the performance of its supply chain, there were some barriers to the adoption of new technologies that were noted. One of these barriers was the age of staff members. The average age of employees may reveal the possible openness that the workforce would have towards using new technologies such as social media. Popescu (2013: 6) illustrates that people between the ages of 18 and 29 may be more familiar with social media technology. They may also be less resistant to change and better able to adopt social media. Popescu (2013: 6) further mentions that people who are above the age of 50 have a lower chance of adopting social media. With a similar perspective, Participant 2 noted that the average age of staff members in the Supply chain and

Logistics department is 38. While this average is not within the range given by Popescu (2013: 6) for people who are more inclined to using social media, the average age is still closer to this range and can thus be viewed as a reflection of how social media could be received by employees in Company A. According to the respondent's experience as a Human Resources Manager, staff members who are 50 and above tend to be less receptive to new technologies. However, staff members who are younger than this age were identified as having a greater inclination to the adoption of new technologies.

Understanding how receptive employees are towards the introduction of new technologies gave an impression of what the level of adaptability to the introduction of more social media tools into the organisation could be. As social media tools are largely unstructured compared to more structured tools used for integration in the supply chain, an insight into what the rate of adoption of new technologies and the types of barriers the retailer encounters was a useful starting point.

6.7.2. Current uses for social media

Participants from both Company A and Company B noted several current uses for social media. Internal communication, external communication with supply chain stakeholders, recruitment, communication with industry peers, knowledge base and idea generation, marketing and brand management, customer engagement, supply chain planning and the identification of disruptions. This information revealed that there is a movement from organisations focusing on the use of social media in business as purely for marketing purposes and a shift towards the recognition of their use in other functions of an organisation, including the supply chain and logistics departments. The roles of social media are thus increasing within organisations and extending to B2B partners. The current uses of social media in the supply chain, also further showed that the retailer has already noted the potential value that social media have to the supply chain.

In Chapter Three, various social media applications were identified for use in the supply chain. These ranged from operational tools for internal integration such as Yammer, to more strategic tools for end-to-end visibility such as Sourcemap. The tools identified were summarised in **Table 3.1** according to their potential value and contributions to the agile supply chain components, as identified in The Agile Supply Chain

Framework. Many of the tools that were discussed in Chapter Three were not identified by participants. Other tools such as WeChat and Whatsapp that had not been discussed in the literature review, were identified as currently used in Company A's supply chain. Whatsapp was the most common tool used across operations and for communication with some external stakeholders and industry peers.

6.7.3. Perceptions towards the use of social media

The diffusion of innovation theory was discussed in Chapter Three. This theory seeks to explain why the adoption rates of technologies differ. The theory identified five factors that have an impact on how technologies are received by organisations: relative advantage, compatibility with existing values and practices, simplicity and ease of use, trialability and observable results (Robinson, 2009: 1). The researcher explored the perceptions towards social media. The findings showed several perceived benefits however, these were fewer compared with the perceived limitations of using social media. In **Table 6.1**, these perceptions were categorised according to the five areas that were identified in the Diffusion of innovation theory.

The most common perceived benefit was the responsiveness of social media tools. This is listed in **Table 6.1** as a relative advantage. Six participants identified the responsiveness of social media tools as potential benefits to be derived from their use in the supply chain. The social media tools currently employed by Company A's Marketing department have facilitated better engagement and visibility of the conversations that Company A's final consumers have about products and services offered by the organisation and its supply chain stakeholders. This engagement has enabled the retailer to better identify the types of trends that its consumers are more attracted to, thus facilitating speed-to-market. In addition, Participant 5 explained that social media have also enabled Company A to detect product defects through monitoring consumer comments on social media. Six of the participants discussed the responsiveness of social media with a reflection of their experiences with Whatsapp. The tool's features were found to be more conducive for responding quickly to disruptions and were deemed suitable and flexible enough for use during peak periods that required higher performance and collaboration of teams. The mobile convenience of this tool has meant that Supply chain and Logistics staff members in Company A are

able to receive quick and simple updates on operations even when they are out of their offices.

Table 6.1: Perceptions towards the use of social media

	Relative advantage	Compatibility with existing values and practices	Simplicity and ease of use	Triability	Observable results
Perceived benefits of using social media	<ul style="list-style-type: none"> -Quick and simple information-sharing -Responsiveness -Mobile convenience -Engagement with consumers -Flexibility 	<ul style="list-style-type: none"> -Adaptability -Improved performance 	<ul style="list-style-type: none"> -Ease of use 	<ul style="list-style-type: none"> -Management support 	
Perceived limitations of using social media	<ul style="list-style-type: none"> -Limited awareness of social media tools for supply chain 	<ul style="list-style-type: none"> -Reduction in productivity -Time-consuming -Low security -Need for policies to govern usage -Low credibility of knowledge base 	<ul style="list-style-type: none"> -Allocation of data 	<ul style="list-style-type: none"> -Limited global accessibility -Limited local expertise -Benefits function dependent 	<ul style="list-style-type: none"> -Return-on-investment not clear - Qualitative information not explicit

Participant 2 thus noted social media tools as adaptable and therefore, compatible with the organisation’s continuous growth and expansion, along with the industry’s volatility. While the knowledge of the types of social media available to the supply chain was limited, six participants identified social media as having potential benefits to Company A and its supply chain. This showed that there was a level of management support for the implementation of social media. In addition, Participant 3 from Company B also expressed support for the implementation of social media in the supply

chain. This willingness to adopt these technologies thus increases the trialability of the innovations, as discussed in Roger's diffusion of innovations theory.

However, although participants were in support of the use of social media in their organisations and supply chain, there were some barriers and limitations that were identified. One such barrier was the limited knowledge of the types of social media available for use. Participants were not completely aware of other social media tools present in the market, besides the ones that were already in use in their organisations. In addition, for some of the tools that were already in use, such as Facebook, three participants (Participant 2, 6 and 7) were not clear as to how these would benefit the organisation or the supply chain department. The responses revealed that in order for social media to be implemented in the supply chain, there should be a greater awareness of which tools are available for supply chain purposes and what the benefits of using these tools are. Without such awareness, the potential for adoption could be there but the chances of adoption would be limited.

While social media applications in the Supply chain department are still in their initial phases in terms of adoption, a comparison between those in Marketing who have been using social media applications for a longer period of time and have an allocated budget for their use shows that in order to be more effective, a clear contribution to the ROI is required for an organisational-wide acceptance of the media. Furthermore, two participants (Participant 1 and 3) noted data allocation as another concern for the adoption of social media. Although social media applications could possibly provide benefits to the supply chain, the effectiveness of the tools is limited to the accessibility that users have to the internet on their devices. Without access to the internet through mobile data, the responsiveness and flexibility of these tools is compromised, especially in situations which require a direct and quick response. While Company A's Supply chain department has the Marketing department as an internal reference for the adoption of social media, the lack of more expertise in the local market may therefore, affect the speed with which social media applications are adopted in the Supply chain department.

Reduction in productivity and the potential for social media to be time consuming were two other barriers that were identified by participants. The study by Gonzalez (2013) bore similar results as it showed that companies still recognised social media as tools for use during leisure and not for use at work, where productivity needed to be

maintained. The concerns of participants in terms of productivity show that in order for social media to play greater roles in the supply chain department and in facilitating integration of functions across the organisation and external network integration, a more structured approach to their implementation that includes policies and rules to direct and manage how people use these largely unstructured tools is important.

In addition, the qualitative nature of the information gathered through tools used for market sensitivity and engagement with consumers was identified by Participant 8 as a limitation for their use. The respondent noted that in order to capitalise on the benefits of using social media for engagement, there need to be methods for analysing the types of information and for ensuring that this information is not taken out of context. In addition, Participant 8 further explained that due to the ambiguous nature of some information gathered, there should be a clear explanation of the extent with which an organisation allows information from social media to influence decision-making processes.

6.8. Conclusion

To conclude, the discussion showed that Company A and its supply chain stakeholders have an innovative culture which is conducive for the adoption of new technologies. In addition, the discussion showed that the retailer and its supply chain have implemented several strategies in order to ensure that the agility and responsiveness of their value chain. Some of the strategies in place are the retailer's sensitivity to the needs and wants of its consumers and to the behaviours of consumers. Furthermore, the retailer, as the orchestrator of its value chain has also acknowledged the valuable contributions and roles that its stakeholders have to the improvement of its agility and competitiveness. A look into the current uses of social media in Company A and its supply chain showed that there were several tools currently in place. Moreover, the perceptions of participants towards the use of social media in their departments revealed that although there was very little knowledge regarding the implementation of social media tools in the supply chain, there was management support towards the implementation of more tools, if any were found to be potentially beneficial and valuable to the organisation and its supply chain performance.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1. Introduction

In previous chapters the agile fashion industry supply chain was discussed in the context of the characteristics of the fashion industry. Fast fashion strategies were explained. A comparison of the lean strategies that were the main focus of the South African fashion industry in the past and the agile strategies that stakeholders are moving towards was provided. Characteristics of social media were presented, along with their potential information-sharing and collaborative benefits to the supply chain. The movement towards the use of social media tools in functions other than marketing was noted. Some of the tools currently available in the market for use in the supply chain were presented and discussed. Their applications to the agile supply chain were explored. Chapter Four provided an account of the methodologies observed for data collection. The findings from the data collection were presented in Chapter Five. These were organised according to themes, categories and codes identified by the researcher. Finally, Chapter Six discussed these findings based on the objectives of the study. This final chapter presents the conclusion and recommendations for the study. It also presents a model for the adoption of social media in the supply chain. The chapter further explains the limitations of the entire research.

7.2. Discussion of research objectives

In this section the extent to which the research objectives were met and the agility of the company study were assessed.

Objective 1: To assess the industry's current sensitivity and responsiveness to market changes.

The Agile Supply Chain Framework construct of market sensitivity was explored. This component of the framework focuses on the fact that agile supply chains are centred on the needs and wants of customers and should thus be responsive to market changes in order to be competitive. Company A showed a high level of market sensitivity and responsiveness. Cross-functional integration involving the Marketing department in various planning processes means that departments such as the Supply chain

department are constantly aware of the behaviours of consumers. In addition, the multiple engagement channels that the Marketing department employs reflect upon this. Company A also has collaborative efforts towards trend predictions with its suppliers thus ensuring an end-to-end approach to market sensitivity. The retailer's E-commerce 3PL was found to have restructured itself in order to ensure that it was in a better position to respond to the increasing demand for online products.

Objective 2: To identify the level of virtual integration of stakeholders in the South African fashion supply chain

In order to facilitate agility in the supply chain, virtual integration was identified in the literature review as necessary. Through virtual integration, supply chains are able to have system-wide visibility into the processes and operations of their supply chain partners. In addition, partners in the complex and extended supply chain are also better able to protect themselves from risks associated with outsourcing globally. To facilitate this virtual integration, it was found that all of Company A's supply chain partners have access to the internet. It was also found that Company A has implemented a new technology called the Glass Pipeline in order to have more visibility of its supply chain. Moreover, Company A's supplier tool, Supply-IT further facilitates visibility of stock and integration between Company A and its suppliers. Moreover, the strategic collaborations of partners in the trend processes show that there is a level of collaborative design and planning between Company A and its stakeholders. Participants also noted that in order to be agile and competitive information-sharing amongst stakeholders is vital.

Objective 3: To evaluate the extent to which existing technologies, used in the South African fashion industry, facilitate process integration

In order to enable process integration, Company A has implemented various strategies and technologies. Supply-IT and the Glass Pipeline were technologies that were found to ensure that there is end-to-end visibility of processes. Supply-IT was also found to enable the retailer and its stakeholders to have visibility into the movement of stock. In addition, the tool also enables suppliers to have a clear image of the replenishment needs of Company A.

Objective 4: To recognise how efficiently strategic relationships are presently coordinated in the complex fashion supply chain in South Africa.

The complexities of modern supply chains have increased the role of the focal company as the orchestrator of its value chain. Company A, which has stakeholders in a number of countries, noted that it now controls its own supply chain. The company also has strategic alliances with some of its stakeholders and as a result invests in ensuring the maintenance of these relationships. The retailer not only values transparency with its suppliers, but it also develops strategic suppliers and ensures that these expand and improve their performance as the retailer grows. Company A thus has collaborations with its partners to improve the retailer's working relationships with them and to improve the system-wide performance of the supply chain.

Objective 5: To assess whether there is a perceived need to improve agility of South African fashion industry supply chains

Literature showed that the South African fashion industry is still not as competitive as that of international retailers like Zara. Participants noted that there were some improvements needed and explained that Company A is yet to reach the standards of its international competitors. However, the retailer is investing in improving its agility and involving its suppliers in the process. Some participants also noted the need for more responsive and flexible tools for communication. Participants showed a sense of resentment towards the use of emails for response situations and a stronger inclination towards the use of more responsive mobile tools such as Whatsapp. In addition, there was also an implied need to encourage more time consciousness in the local supply chain.

Objective 6: To deduce from the findings of an empirical study, if there are opportunities for the adoption of social media in South African fashion industry supply chains.

The retailer has implemented several new technologies in its facilities and is focused on continuously implementing more technologies that improve its performance. Although this is so, it was found that the retailer has faced some barriers to the implementation of technologies. Age of employees was an example of such a barrier, along with the low development of suitable tools for supply chain improvement. However, while this is so, the retailer showed an innovative culture towards technological developments. The

retailer’s current use of social media in its operations and its supply chain was a reflection of this.

The company had several uses for social media. Social media applications were currently used for internal communication, external communication with supply chain stakeholders, recruitment, communication with industry peers, knowledge base and idea generation, marketing and brand management, customer engagement, supply chain planning and the identification of disruptions. It was therefore; found that Company A and its supply chain partners are currently using social media. However, the applications to the supply chain are still minimal. Whatsapp was the most commonly used tool across internal operations.

Through a combination of findings from the literature review and those from the empirical research, it was found that social media have various applications to the supply chain. Some of the potential information flows proposed for social media in relation to the four components of the Agile Supply Framework are presented in the **Figures 7.1 – 7.4**.

Figure 7.1: Potential social media information flows for virtual integration (Compiled by Researcher, 2015)

Inputs		Processes		Outputs
Identification of extended network of partners (suppliers’ suppliers) (Source Map)	→	Evaluation of operations of indirect suppliers and stakeholder compliance	→	End-to-end visibility of extended supply chain
Identification of supply chain risks (Source Map, Twitter)	→	Coordination of responses to disruptions	→	Quick response to unforeseen events and shared risk management
Information about accidents, weather conditions and road closures (Twitter)	→	Communication with truck drivers to change routes, to avoid unforeseen events	→	Reduced delivery delays and lower lead times

Figure 7.2: Potential social media information flows for market sensitivity

(Compiled by Researcher, 2015)

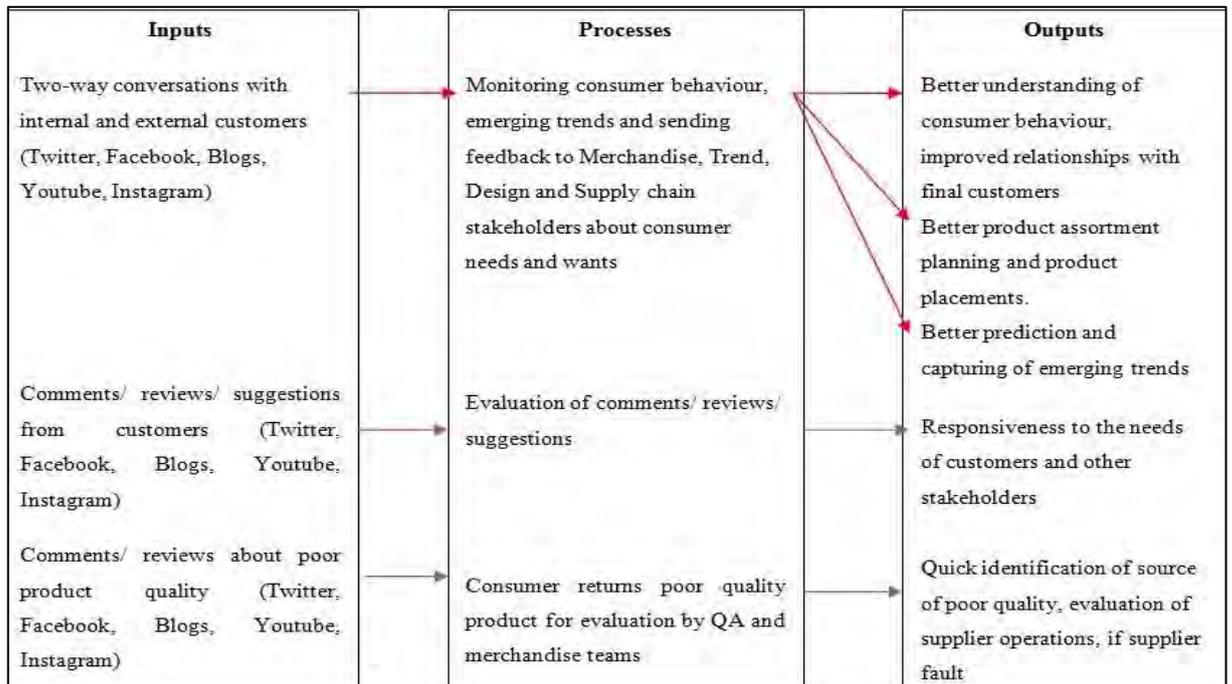


Figure 7.3: Potential social media information flows for process integration

(Compiled by Researcher, 2015)

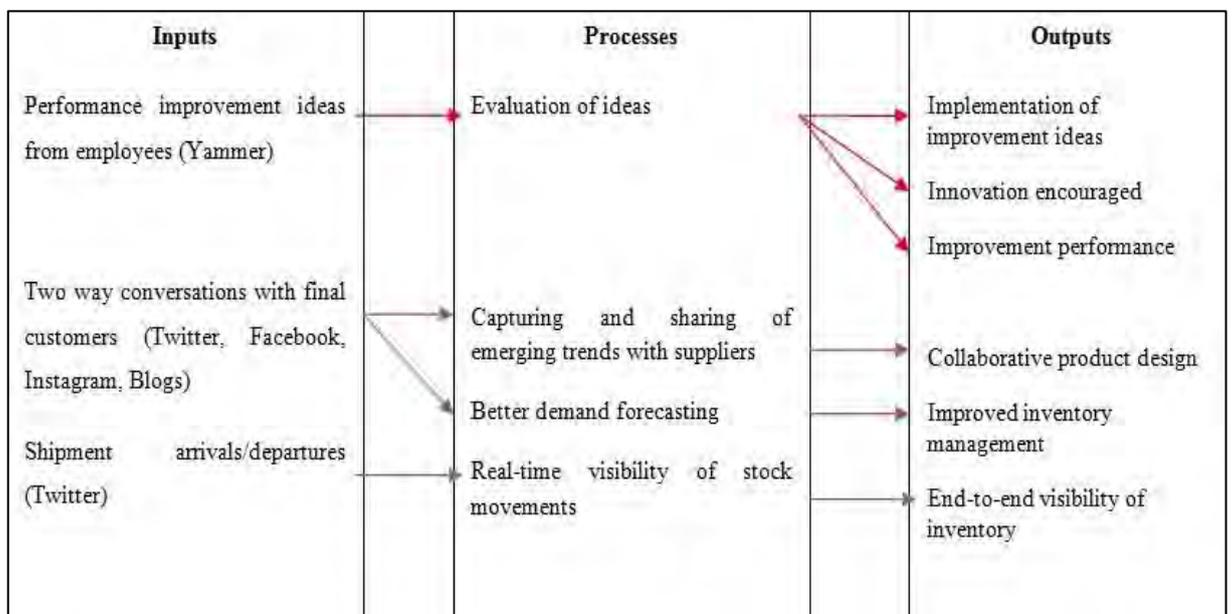
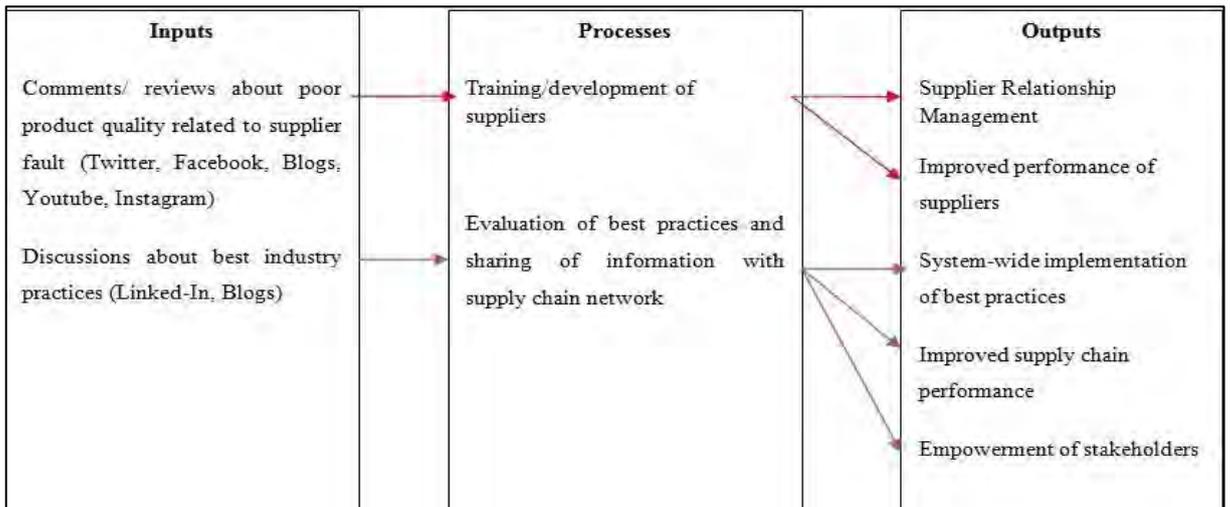


Figure 7.4: Potential social media information flows for network based management (Compiled by Researcher, 2015)



While it was found that social media tools are currently used in the supply chain, the researcher investigated the perceptions and attitudes which participants had towards social media. Several benefits were identified from using various applications currently in place. It was also found that there was also management support for the use of more tools as these appeared to address the retailer’s need for more responsive, flexible, adaptable and agile tools. However, insight into some of the limitations and barriers as perceived by participants showed that there were various concerns towards the use of more social media applications. Participants cited limitations such as possible reduction in productivity and the low security currently present on social media tools.

Through these responses, it can be deduced that the potential for social media adoption is currently largely determined on a tool-by-tool basis. Therefore, in order for a social media tool to be integrated into a company and its supply chain’s operations it needs to have various characteristics that reflect its ability to be aligned with the values and policies of an organisation and its supply chain. The capabilities that individual tools have in this respect would better determine their likelihood of being implemented to improve the agility of the organisation’s supply chain. Using the responses towards social media, the researcher compiled a list of criteria that tools need to meet in order to increase their chances of adoption by the retailer and its supply chain. These criteria are listed and explained in **Table 7.1**.

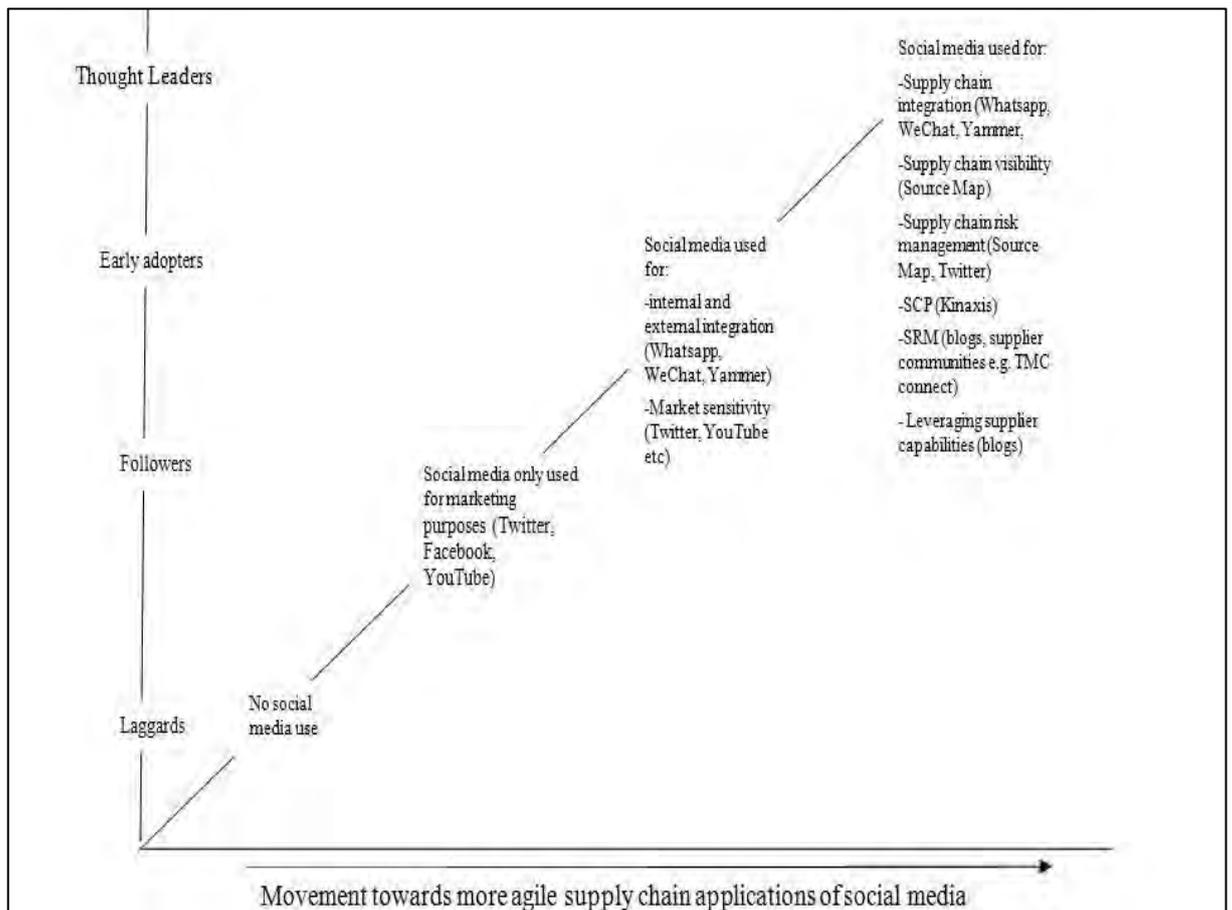
Table 7.1: Criteria for the selection of tools (Compiled by Researcher, 2015)

Criteria	Detail
Site Security	High site security and protection of internal information (Private platforms more favoured than public platforms).
Transferability of conversations	Information communicated on a social media tool should be easily transferrable to other more formal tools such as emails.
Ease of tracking information	Tools that enable users to have a historical recording of interactions.
Benefits should be clear	Benefits of using various tools should be clear and visible to the organisation and its supply chain.
Value adding	The benefits of a tool should not only be clear but should be visibly value adding.
Alignment of tools with organisational culture	Benefits should align with organisational culture, values and strategies across the supply chain.
Global accessibility	Tool should be widely accessible and accepted in many countries in order to be used by international supply chain stakeholders.
Mobile platform	Tools should be accessible on mobile devices.
Regulated use	Organisations should have developed rules to guide the use of social media internally and with their supply chain stakeholders.

Furthermore, according to the literature review and the findings of the data collection, the sequence of adoption of social media in the supply chain is gradual. Marketing applications are more easily adopted and if used to achieve more agility in the supply chain, can facilitate market sensitivity. A movement towards the adoption of private tools for integration is the next step for supply chains. Messenger tools such as WeChat and Whatsapp are currently used in Company A for this purpose. While Facebook was

identified as potentially useful for internal communication, its low security restricted its application for this. Yammer was identified as having been developed specifically for internal and external communication and integration and thus may facilitate the need for higher security. The fourth step to towards the adoption of social media will be the implementation of more tools in the supply chain. Tools will have a wider purpose and a wider usage beyond internal and external communication and beyond market sensitivity through the Marketing department. Currently, the adoption of these tools is limited to innovators and thought leaders, however, with more information on the potential benefits of tools to the supply chain and more local perspective on their use, these tools will become more common to South African supply chains. **Figure 7.5** presents a continuum for the adoption of social media in the agile supply chain. The continuum lists tools in accordance with their potential and current sequence of adoption in the agile supply chain.

Figure 7.5: Continuum for the adoption of social media in the agile supply chain
(Compiled by Researcher, 2015)



7.3. Proposed model for the adoption of social media in the agile supply chain

Using the findings gathered from the literature review and the empirical data collected, the researcher formulated a model for the potential adoption of social media (See **Figure 7.6**). The model has three constructs:

1st construct: Potential social media contributions to agile supply chain – This summarises the potential contributions to the supply chain as identified in the literature review and in the findings. Tools currently used for each of the four components of the agile supply chain are listed.

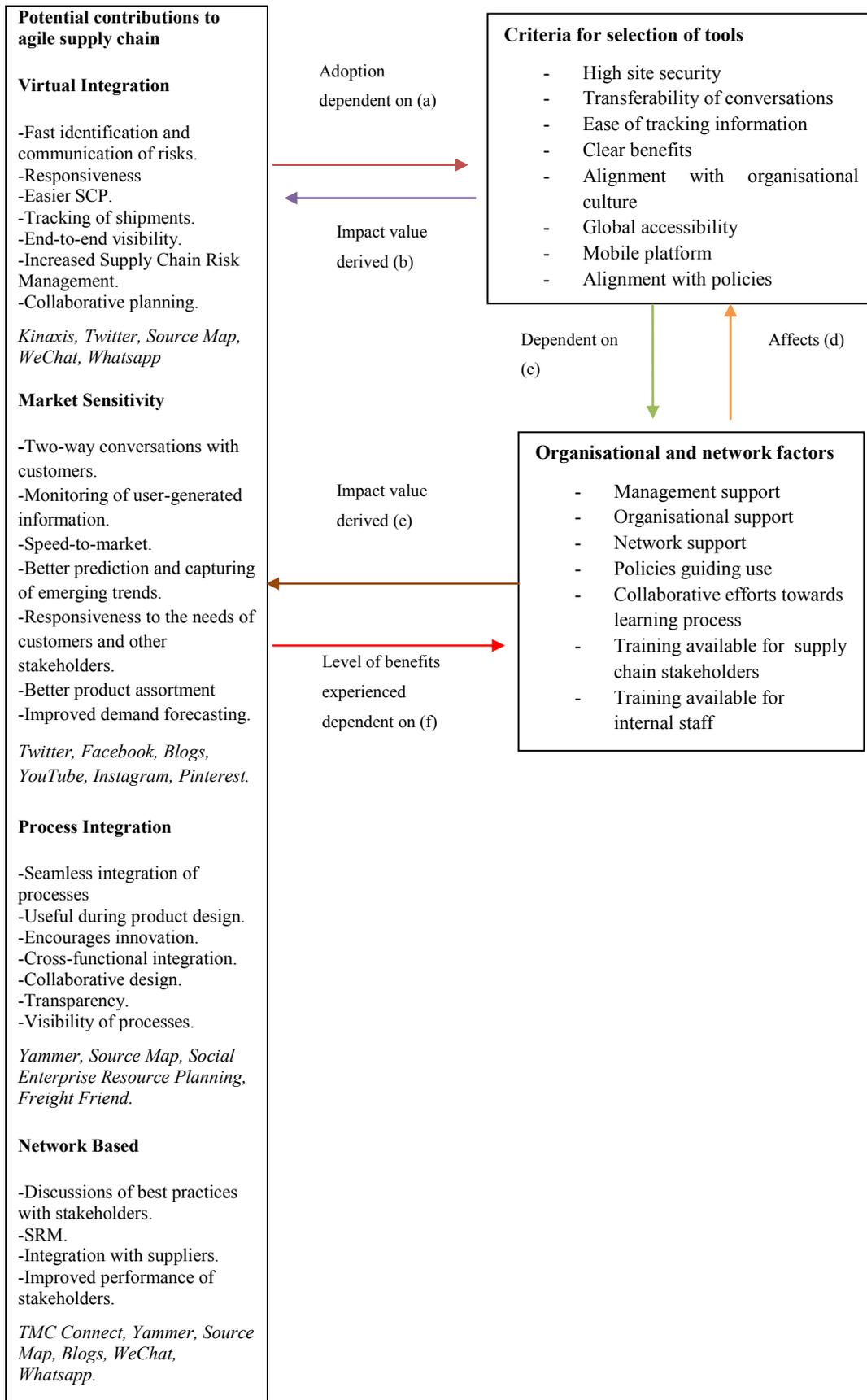
2nd construct: The criteria for selection of tools – This was generated from the perceptions that participants had towards the use of social media. These are the criteria that tools need to meet in order to be adopted to increase agility in the supply chain.

3rd construct: Organisational and network factors – These were also formulated from the findings of the empirical and affect the rate of adoption of social media tools.

Model flows:

- a) The adoption of the social media tools identified in the 1st construct is dependent on their ability to meet the individual criteria listed in the 2nd construct.
- b) The criteria for the selection of tools impact the maximum value that can be derived from the tools identified in the 1st construct. For example, low site security may result in minimal usage of specific tools.
- c) The criteria for the selection of tools are dependent on the organisational and network factors. This is because organisations and their networks may formulate their own criteria based on their individual organisational and supply chain cultures and values.
- d) Likewise, the organisational and network factors affect or dictate the types of criteria adhered to.
- e) The organisational and network factors also impact on the value to be derived. For example, if sufficient training is not provided for stakeholders, the benefits of the tools will not be fully optimised or realised.
- f) Similarly the level of benefits experienced is again determined by the organisational and network factors.

Figure 7.6: Model for the adoption of social media in the agile supply chain



7.4. Recommendations

7.4.1. Recommendations for the retailer's adoption of social media

- Policies should be created to guide the use of social media and to prevent the abuse of social media. These policies should clearly define how staff members should use social media. The policies could also include clear details of the amount of time that users are expected to spend on tools. Staff members may also be held accountable for using social media for personal purposes during working hours.
- The retailer and its supply chain stakeholders should develop a mutual list of criteria for the selection of social media tools to be used across the supply chain. These will ensure that the tools selected are in accordance with the overall strategies of the supply chain and the goals of the stakeholders towards meeting agility. For example, before selecting a social media tool to use for communication across the supply chain, stakeholders may identify a shared need for the selected tool to be private and secure. Therefore, upon selecting a tool, the level of privacy and security of each tool will be evaluated as an important factor to consider before selection.
- Training should be provided for staff members and strategic stakeholders who will adopt social media. This will enable less resistance towards the use of social media. It will further enable users to derive the full benefits of the tools to their supply chain performance.
- Organisational research, from staff members, regarding the types of tools available for use in the supply chain could enable the retailer to identify more beneficial tools.

7.4.2. Recommendations for the developers of social media tools for supply chain

- Developers of social media tools applicable to the supply chain should ensure that users are fully aware of the level of site security. In addition, developers should also implement more secure settings for organisations to have a greater sense of security when implementing these tools in their supply chains.
- Developers should also approach supply chain stakeholders with detailed information about the various tools they offer and how they apply to the supply chain.

- In addition, developers can offer training for organisations. In this way, staff members and supply chain stakeholders will have a clear understanding of how to optimise their use of the tools.
- Social media developers can also aim to expand the global accessibility and marketing of their social media tools in order to increase awareness of the tools and make them widely accessible and suitable for use by supply chain stakeholders in different geographical locations.
- Social media tools that can be tailored to the varying needs of individual supply chains can also be developed.

7.4.3. Recommendations for future research

- A larger sample of stakeholders, representative of both the focal company and its partners would make the results of the study more generalisable.
- A comparison of retailers operating in the fashion industry could present a wider perspective from different organisations.
- The model for the adoption of social media in the agile supply chain presented in Figure 7.6 could be tested in a number of agile supply chains to determine if all constructs are true and applicable to all types of agile supply chains seeking to adopt social media.
- A greater focus on individual elements of the agile supply chain and the benefits that could be derived in each of these constructs could provide more elaborate and in-depth studies for the application of social media tools.
- A study focusing on the financial benefits of social media tools to the supply chain could further allow supply chain stakeholders to have greater awareness of the tools.

7.4. Limitations

There were some limitations to the study:

- There were a limited number of academic sources to construct a literature review focused on the use of social media in the supply chain.

- The empirical study was limited to one retailer's supply chain, thus the generalisability of the findings may not be true to the entire population of South African apparel retailers.
- All elements of the population of South African apparel retailers did not have an equal probability of being selected for the study, as the researcher only focused on retailers present in KwaZulu-Natal.
- Mostly senior management were interviewed for the study thus the opinions of operational and tactical staff members were not equally consulted.
- Only one of the retailer's supply chain partners was included in the sample, thus the opinions of this stakeholder may not be representative of the retailer's entire network.

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Appendix A: Interview Guide: Resources Department/Supply chain department

Participant No:

Job Title:

Starting time of interview:

Ending time of interview:

Interview Schedule:

Section A: Market sensitivity

*First section of the interview schedule only applicable to the Resources department.

1. How does your organisation monitor emerging trends in the South African market that may affect your buying processes?
2. How accurate are your trend predictions towards meeting actual demand for different trends?
3. Do social media play a role in your trend capturing? If yes, please explain.
4. Has the accuracy of your predictions improved since using social media?
5. If applicable, how has the increased entrance of international retailers in the South African market, affected your purchasing strategies?

Section B: Stakeholder management

6. How would you describe the relationship you have with your suppliers?
7. How has the percentage of your products made locally changed over the past 5 years?
8. How does the geographic location of your suppliers affect your delivery times?
9. What methods/strategies do you use to review supplier/partner reputations before using them?

10. Do social media play any role in this reputation analysis? (e.g. comments/reviews on suppliers).
11. What processes/technologies have you put in place to monitor the performance of partners?
12. Do you have any processes/methods to develop suppliers?
13. Are any of these online based?
14. Are there any platforms for you to discuss best industry practices with your suppliers?
15. Are you aware of your suppliers' suppliers?
16. Are there any strategies in place to help you identify who your suppliers' suppliers are?
17. What percentage of your suppliers has access to the internet within their facilities?
18. Do any of these have some form of social media presence?

Section C: Perceptions towards social media

19. What role do social media play in your department?/ How else is social media used in your department?
20. Are you aware of any other social media applications that can be used in your department?
 - Would you use any of these?
21. Do you view social media as a possible strategic tool to improve performance in your department? Please explain your answer.
22. Do you think there would be any other opportunities/be of using social media within your facilities?
 - Do you think that all departments in your organisation could benefit from using social media to communicate?
23. Do you feel that there are any barriers to using social media in your facilities?

Appendix B: Interview Guide: Logistics department

Participant No:

Job Title:

Starting time of interview:

Ending time of interview:

Interview Schedule:

Section A: Information-sharing

1. How valuable and important is information-sharing amongst your company's internal and external stakeholders (i.e employees, suppliers, customers)?
2. How do you transfer information internally and externally in your supply chain? How effective are these methods?
3. Do social media currently have a role in this?

Section B: Stakeholder management

4. Are there any platforms for you to discuss best industry practices with your suppliers?
5. Are you aware of your suppliers' suppliers?
6. Are there any strategies in place to help you identify who your suppliers' suppliers are?
7. How is this information made visible to customers and other interested and relevant stakeholders?
8. What technologies/strategies do you use to identify stakeholders that may be affected by any decision-making processes?

9. How is information from all decision-making processes uploaded and updated on all company-approved desktops and smart devices used by relevant stakeholders?

Section C: End-to-end visibility

10. How do you communicate real-time information about the location of products in-transit?

11. What are the main causes of product delivery delays you have recently experienced?

12. How quickly is information about delays in delivery communicated to relevant and affected stakeholders?

13. Who/what is your main source of information about unforeseen events, such as accidents, unfavourable weather conditions and road closures that may affect the smooth delivery of products?

-Have social media ever been sources of information about unforeseen events?

14. How would you rate the accuracy of information from this source?

15. What methods of communication do you use to coordinate responses to disruptions?

16. How effective are these methods towards improving the speed with which you respond to problems?

Section D: Perceptions towards social media

18. Do social media play a role in this reputation analysis?

19. Are you aware of any social media applications that can be used in your department?

20. Do you view social media as a possible strategic tool to improve performance in your department? Please explain your answer.

21. Do you feel that there would be any barriers to using social media in your facilities?

22. Do you think there would be any opportunities/benefits of using social media within your facilities?

- Do you think that all departments in your organisation could benefit from using social media to communicate?

Appendix C: Interview Guide: E-commerce 3PL

Participant No:

Job Title:

Starting time of interview:

Ending time of interview:

Interview Schedule:

Section A: Market sensitivity

1. How has the growth of online shopping, both internationally and nationally in the South African market, affected your delivery strategies?

Section B: Information-sharing

2. How do you transfer information to your internal and external partners? How effective are these methods?

3. Do social media currently have a role in this?

4. What technologies/strategies do you use to identify stakeholders that may be affected by any decision-making processes?

5. How is information from all decision-making processes uploaded and updated on all company-approved desktops and smart devices used by relevant stakeholders?

6. How do you communicate real-time information about the location of products in-transit?

Section C: End-to-end visibility

7. What are the main causes of product delivery delays you have recently experienced?

8. How quickly is information about delays in delivery communicated to relevant and affected stakeholders?

9. Who/what is your main source of information about unforeseen events, such as accidents, unfavourable weather conditions and road closures that may affect the smooth delivery of products?

- Have social media ever been sources of information about unforeseen events?

10. How would you rate the accuracy of information from this source?

11. What methods of communication do you use to coordinate responses to disruptions?

12. How effective are these methods towards improving the speed with which you respond to problems?

13. How receptive is your department towards adopting new technologies?

Section D: Perceptions towards social media

14. Does your organisation currently have a social media presence?

15. Are you aware of any social media applications that can be used in your department?

16. Do you view social media as possible tools to improve performance in your department? Please explain your answer.

17. Do you think that all departments in your organisation could benefit from using social media to communicate?

18. Do you feel that there would be any barriers to using social media in your facilities?

19. Do you think there would be any opportunities/benefits of using social media within your facilities?

Appendix D: Interview Guide: Marketing department

Participant No:

Job Title:

Starting time of interview:

Ending time of interview:

Interview schedule:

Section A: Market sensitivity

1. How often do you introduce a new range of products?
2. What techniques do you use to forecast demand and share these forecasts with relevant external stakeholders?
3. How does your organisation monitor emerging trends in the South African market?
4. How accurate are your trend predictions towards meeting actual demand for different trends?
5. Do social media play a role in your trend capturing? If yes, please explain.
6. Has the accuracy of your predictions improved since using social media? How?
7. What technology/ processes do you use to monitor suggestions from customers?
- How useful is feedback from customers, on social media, to your department?
8. How does the emergence of popular fashion and lifestyle influencers (celebrities, bloggers etc) affect your trend capturing and analysis?
9. If applicable, how has the emergence of modern technology (eg online shopping, social media) affected your customers' expectations?
10. How has the increased entrance of international retailers in the South African market, affected your marketing strategies?

Section B: Perceptions towards social media

12. What other roles do social media play in your department?

13. Are you aware of any other social media applications that can be used in your department?

14. Do you view social media as strategic tools to improve performance in your department? Please explain your answer.

15. Do you think that all departments in your organisation could benefit from using social media to communicate?

16. Do you feel that there are any barriers to using social media in your facilities?

Appendix E: Interview Guide: Human Resources department

Participant No:

Job Title:

Starting time of interview:

Ending time of interview:

Interview schedule:

Section A: Organisational structure and culture towards technological developments

1. What is the average age of employees within your organisation?
2. How does training of employees take place in your organisation?
3. How effective is this strategy towards simultaneously training employees in different facilities and geographical locations?
4. What platform(s) do you use to engage employees in different geographic locations?
5. How effective is the platform(s) towards simultaneously engaging all employees in different geographical locations?
6. How often do you introduce new technologies in the organisation?
7. How receptive are employees in the organisation towards the implementation of new technology?

Section B: Perceptions towards social media

8. What role do social media play in your department?
9. Are you aware of any social media applications that can be used in your department?

Do you view social media as a possible strategic tool to improve performance in your department? Please explain your answer.

10. Do you feel that there would be any barriers to using social media in your facilities?

11. Do you think there would be any opportunities/benefits of using social media within your facilities?

Appendix F: Informed Consent form

UNIVERSITY OF KWAZULU-NATAL
School of Management, IT and Governance

Dear Respondent,

M Com Research Project

Researcher: Chenai Muhwati (+2783 662 4085)

Supervisor: Hans Salisbury (033 260 5458)

Research Office: Mariette Snyman (031 260 8350)

I, Chenai Muhwati am a Master of Commerce student in the School of Management IT and Governance, at the University of KwaZulu-Natal. You are invited to participate in a research project entitled, '*The potential role for social media to improve agility in South African fashion industry supply chains*'.

The aim of this study is to: Determine if there are any opportunities for social media to be adopted in the South African fashion industry supply chains, in order to improve the responsiveness of the industry.

Through your participation I hope to understand what role, if any, social media could potentially have in the South African fashion industry supply chain, in terms of increasing responsiveness. The results of this survey are intended to contribute to increasing the industry's international competitiveness, through determining the effectiveness of social media, in the local context, as a potential tool for improving responsiveness.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the School of Management IT and Governance, UKZN.

If you have any questions or concerns about participating in this study, please contact me or my supervisor at the numbers listed above.

It should take you about 30 minutes/s to complete the interview process. I hope you will be patient during this process.

Sincerely

Investigator's

signature _____

Date _____

UNIVERSITY OF KWAZULU-NATAL
School of Management, IT and Governance

M Com Research Project

Researcher: Chenai Muhwati (+2783 662 4085)

Supervisor: Hans Salisbury (033 260 5458)

Research Office: Mariette Snyman (031 260 8350)

CONSENT

I _____ (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

I consent / do not consent to having this interview audio- recorded.

Signature of Participant

Date

This page is to be retained by researcher

Appendix G: Ethical Clearance



21 May 2015

Ms Chenai Muhwati (209521787)
School of Management, IT & Governance
Pietermaritzburg Campus

Dear Ms Muhwati,

Protocol reference number: HSS/0517/015M

Project title: The potential role for social media to improve agility in South African fashion industry supply chains

Full Approval – Expedited Application

With regards to your application received on 15 May 2015. The documents submitted have been accepted by the Humanities & Social Sciences Research Ethics Committee and **FULL APPROVAL** for the protocol has been granted.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Shenuka Singh (Chair)

/ms

Cc Supervisor: Dr RH Salisbury
Cc Academic Leader Research: Professor Brian McArthur
Cc School Administrator: Ms Debbie Cunynghame

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

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