Review of Fashion Product Development Models

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Abstract: The UK fashion industry has changed in the last twenty-five years with the introduction and development of new technologies, increased consumer demands and changing consumer behaviour. These changes have disrupted many business models within the fashion supply chain for example in the areas of consumer expectations, retail formats, product assortment, speed to market and manufacturing (Barnes & Lea-Greenwood, 2006; Christopher, Lowson, & Peck, 2008; Doyle, Moore, & Morgan, 2006; Goworek, 2014; McCormick et al., 2014; Tyler, Heeley, & Bhamra, 2006).There is limited research in the field of Fashion Product Development (FPD) with relatively few theoretical models that support the process (d'Avolio, Bandinelli, & Rinaldi, 2015; Goworek, 2010; Le Pechoux, Little, & Istook, 2004; Silva & Rupasinghe, 2016). These however, are considered dated and do not consider the changes and challenges in contemporary UK High Street fashion sector. This research critically investigates product development in the context of UK High Street 'own label' fashion clothing. In so doing, the research places considerable focus upon inputs, outputs, planning and management in order to map comprehensively the interplay of people, processes and procedures of product development adopted by UK High Street fashion clothing brands. This research aims to challenge the traditional Fashion Product Development Process and presents a new model more reflective of the context in which the business model is focused.

Goworek (2010) proposed that to work effectively, fashion product development processes involve co-operation rather than mere co-ordination, mirroring practice in the domain of engineering design as suggested in the work of Boujut and Laureillard, (2000). This idea has formed the basis of this research. Applying theories from New Product Development (Cooper & Kleinschmidt, 1995; Hart, 1996; Johne & Snelson, 1988; Krishnan & Ulrich, 2001), Project Management (Clelands & Ireland, 2002; Lock, 2013; Major, 2010; Packendorff, 1995; Soderlund, 2004) and Fashion Product Development to identify any parallels, similarities and gaps to establish the contribution. The expected outcome will be a new Fashion Product Development Model more appropriate for the contemporary fashion industry, responding to the demand for increased speed and decision making when developing fashion products.

1. Introduction

The purpose of this study is to develop the research thinking about the process of managing the product development process for apparel in different sectors of the UK High Street. This paper reviews the academic literature in the areas of New Product Development (NPD), Project Management (PM) and Fashion Product Development (FPD) in order to help establish a structure of research and a management model that can explain and support the development of apparel products for contemporary High Street retailers in the UK. The introduction and development of new technologies, plus the changing behaviour of consumers and their demands have disrupted many business models within the fashion supply chain and driven a research agenda for many (Barnes & Lea-Greenwood, 2006; Christopher, Lowson, & Peck, 2008; Doyle, Moore, & Morgan, 2006; Goworek, 2014; McCormick et al., 2014; Tyler, Heeley, & Bhamra, 2006). Furthermore, there is limited research in the specific field of Fashion Product Development (FPD) with relatively few current theoretical models that support the process (Carr & Pomeroy, 1992; Goworek, 2010; LaBat & Sokolowski, 1999; Lamb & Kallal, 1992; May-Plumlee & Little, 1998; May-Plumlee & Little, 2006). These attempts, however, could be considered dated. They do not consider the changes and challenges in contemporary UK High Street fashion sector. Yet the development of new products is a core activity within the fashion industry, it is a knowledge intensive set of tasks which needs to be continually improved and developed in order to enhance a retailer's competitive advantage. Increasing the frequency and 'newness' of fashion collections has become crucial for the survival of many fashion companies (Tran, Hsuan, & Mahnke, 2011). Consumers demand products that reflect the latest trends and are

available to buy immediately. These aspects coupled with the motive to decrease lead times are changing how retailers traditionally worked within the Fashion Product Development process. This drives the need to understand the most effective methods of developing products in the quickest time possible. Considering how to control the process is vital to the success of a retailer (Rosenau, 2001). This complex process, its multidisciplinary nature, and how it is managed is the prime subject of the investigation and will conclude in a contribution to the literature in the Fashion Product Development field.

2. The UK High Street

The UK High Street is an often used term. For apparel, it can be defined as a market (physical and on line) with short product lifecycles, high volatility of demand, low predictability and high levels of impulse purchasing (Christopher et al., 2008). Importantly, it has evolved and developed dramatically over the last twenty year with many changes regarding how, when, what and where consumers shop. These changes have led to developments in many different areas within the retailing, creative and manufacturing processes as well as the landscape and the market environment. Barnes & Lea-Greenwood, 2006; Christopher, Lowson, & Peck, 2008; Doyle, Moore, & Morgan, 2006; Goworek, 2014; McCormick et al., 2014; Tyler, Heeley, & Bhamra, 2006 are just some authors who have addressed and explored research for the challenges of comtemporary fashion retail . It is these developments that have been a catalyst to the changes in the product development process that is used for apparel products in contemporary high street retailing.

2.1 Drivers of Fashion Change

There are some specific developments that have been significant for retailers on the UK High Street. For the purpose of this research these shall be referred to as “drivers of change”. These drivers include, developments in;

- new technologies (in business and in consumer lifestyle);
- increasing number of ways in which consumer demands are expressed;
- changing consumer behaviour.

Together, these drivers have influenced and in some cases fundamentally changed the traditional form of consumer expectations, retail formats, product assortment and speed to market manufacturing. Technology is probably the key catalyst for changes in: business processes, behaviour (business and consumer), and consumer expectations. Since the birth of

the internet twenty five years ago the retail industry has fully embraced the technological development in all areas of retail. The Internet has without doubt exerted the greatest single force in recent years upon retailing both in the UK and abroad (McCormick et al., 2014). Technological changes in systems and software has affected the manufacturing of products, and advances in the communication and ease of dialogue between brand and consumer. Changes in retailing are happening in abundance and they are influencing retailers in many ways. There has been a shift from a product-focused to a more consumer driven strategy in contemporary retailing (Khan, Christopher, & Creazza, 2012).

2.2 Private Own Label Product

There has also been a change regarding the retailer ownership of the design of a product. Jackson and Shaw (2008) note that the point of difference for UK fashion retailing is that the structure of the industry is now dominated by fashion retailers such as Topshop and Zara who have developed their own ranges to become competitive and sought-after high-street brands. It is this own label product development of retailers that is a principal interest of this research. These changes in how product is designed and produced mean that the retailers' in-house product development resources are now highly extensive and skilled (Grose, 2012). This has also created a demand for creative product development skills (Goworek, 2010) that is challenging the traditional business model. This form of product development has grown rapidly: it has grown to such an extent that sub-brands and designer diffusion lines are now owned by retailers as part of their range of product lines. It can also be argued that the ownership and full control of these product ranges and the development process is the priority of UK High Street retailers (McGoldrick 2002). The management and development of these processes are crucial to the achievement and success of getting the right products at the right time in front of consumers in order to achieve the greatest margins.

2.3 Fast Fashion Epidemic

The term "fast fashion" is used to define a business model that illustrates a more responsive and quicker approach to product manufacture. It describes a business strategy that aims to reduce processes and lead-times within the buying cycle to meet customer demand (Barnes & Lea-Greenwood, 2006). Fast fashion is process that uses the most time effective methods to achieve the shortest time from concept to shop floor. It would seem that most UK High Street fashion retailers have adopted a fast fashion business model in order to address changes in; consumer demand, fierce B2B and brand competition, and the consumption and turnover of

fashion and social trends. Fast fashion is acknowledged as being the key strategy for success for modern fashion retailers (Barnes & Lea-Greenwood, 2006). There is a great emphasis on products being in the right place at the right time to satisfy consumer demands. Product design and quality control are minimized or sometimes eliminated from a fast fashion process when products need to be in store within six weeks (Barnes & Lea-Greenwood, 2006). Retailers are developing product ranges and collections so there is a continuous delivery of new items available for consumers. These short selling seasons are driving a move away from the traditional two to four phases per seasons to, in some cases, twenty phases per season. International retailers like Zara, are seen to be at the forefront of this model and have streamlined their supply chains to deliver this approach. Today's fashion market place is highly competitive and the need to refresh product ranges has led retailers to extend the number of phases per season (Elena, Giustiniano, & Pirolo, 2013). Fast fashion is a concept that will continue to affect the industry over the next decade and will have a direct impact on the way consumers purchase and react to trends (Bhardwaj & Fairhurst, 2010). However, it is the understanding of consumer behaviour, consumption and their motivation that will initiate a more effective initial product development process and retail performance (Bhardwaj & Fairhurst, 2010). As the speed to market of new styles and trends is becoming increasingly rapid and technology has boosted the sense of urgency among fashion-savvy shoppers for the latest styles, clothing retailers are rolling out new products on a more regular basis and the demand for a fast fashion reaction is greater than ever before (Key Note 2014).

2.4 Consumer Demands

Consumer expectation and demand are changing what and when products are available. Forecasting fashion products has always been a difficult and unpredictable. But the use of technology and social digital platforms has encouraged a two way transparent dialogue between retailer and consumer that has led to an increase in expectations and the expression of consumer demand: consumers have increased their ability to communicate their desires. Consumers are more trend aware and informed yet less patient and brand loyal than ever. These changes in consumer behaviour are having a direct influence on the variety and availability of styles: this is one driver of the move from a four range season to a more continuous cycle of new products that are less season specific.

Consumers have a much more in-depth knowledge of fashion and social trends and this has also increased their expectations of what should be available to them on a product and service level from retailers. The use of technology has contributed to this dramatic rise in

instantaneous knowledge of new trends and competitive brands (Elena et al., 2013). Mass communication allows access to latest trends and style information (Barnes & Lea-Greenwood, 2006).

Forecasting consumer demand has always been very difficult to do for a fashion product due to: long product lead times, short selling seasons, weather, and unpredictable demand (Elena et al., 2013). Trying to manage these demands has led to many studies of the fashion supply chain (Christopher et al., 2008; Doyle et al., 2006; Hilletofth & Eriksson, 2011; Tyler et al., 2006) with many successful models and approaches developed to support product manufacturing and supply chain management. Getting a product from idea to store in the quickest yet most effective way possible is important but maintaining the correct product offering is crucial to retail success. Understanding and forecasting demand is complex and unreliable and it has been generally accepted by researchers and industry professionals that demand for fashion products cannot easily be forecast (Elena et al., 2013). There are many demand theories that can be utilized for different consumers and different retailers and to try and develop a "one size fits all" demand model for all fashion retailers is impossible. Just as consumers and brands all have a different identity perhaps the categorization of product types should be considered when thinking about demand forecasting.

Understanding how consumers utilize products will give some indication of how to address the demand issues. A variety of different physical and emotional elements can be associated in the use of products and in turn influence the purchase of new products. If retailers can identify and specify these aspects of consumer behavior they might successfully influence how demand forecasts can be utilized in the product development process.

3. Fashion Product Development

An area of research that is limited in literature, focussing on more of the departmental stage process models. Fashion Product Development (FPD) can be considered as the strategic planning of goods using the key areas of creative, technical, production, and distribution (Keiser & Garner, 2008). It is essential to the fashion business as a translation of ideas to commercial products (Grose, 2012). These stages are also sometimes referred to as the design process however it is important to remember that the manufacturing element is not usually considered in some of the current research. The design process generally includes all steps involved from generation of ideas and concepts to prototype development of the end product

(Pechoux, Little, & Istook, 2004). The main stages in the FPD process are based on the approximate chronological sequence in which they usually occur, though several elements can overlap temporarily (Goworek, 2010). Tyler et al (2006) observe that product development in the textile and clothing industry has been characterised by functional independence with each participant contributing to the process sequentially. They consider that the issues with FPD in the UK are with lead times and that there are a lot of communication issues between the different functions (Tyler et al., 2006). There are few current theoretical models and research that address the process that will initiate the starting point for this research (d'Avolio, Bandinelli, & Rinaldi, 2015; Goworek, 2010; Le Pechoux, Little, & Istook, 2004; Silva & Rupasinghe, 2016). Goworek (2010) proposed that to work effectively, fashion product development processes involve co-operation rather than mere co-ordination, mirroring practice in the domain of engineering design as suggested in the work of Boujut and Laureillard, (2000). This is one idea that may influence this research. There are few empirical models in the apparel sector and most of the published models are conceptual. It is worthwhile for apparel industrialists to inspire NPD strategies from other manufacturing industries (Silva & Rupasinghe, 2016).

4. New Product Development

The importance of New Product Development (NPD) has driven a large research agenda by many authors and there is vast literature on the subject (Cooper & Kleinschmidt, 1995; Hart, 1996; Johne & Snelson, 1988; Krishnan & Ulrich, 2001). The literature covers many different elements of the process as well as the variety of issues concerned with NPD. Brown and Eisenhardt (1995) produced a review of the previous literature that addressed the many elements of product development and mapped out the strengths and limitations, the range of disciplines that focus and contribute to NPD. It is the management of these disciplines that is the fundamental concern of new product development (Trott 2008). There is a variety of perspectives from each of the disciplines that are applied to the process that make it a complex process to manage. However, as Trott (2008) points out these should be seen as strengths rather than viewed as a weakness if they do not share a common approach. Krishnan & Ulrich (2001) take the view that research in product development must be tightly motivated by the needs of industrial practice. This is because product development is essentially a commercial function, and therefore most knowledge about product development does not have much meaning outside of the commercial realm. It is well documented that new product development is resource hungry and is a high risk activity (Hart, 1996). It is

the process models of New Product Development that is of interest for this research, Product development models encapsulate the many tasks involved from generating and evaluating the new products from development through to physical products (Hart 1996). Models over this vast research agenda have been catagoriesed by Saren (19840 and Trott (2008). The later models of Network , Mutiple Convergent and Evaluation are a particular interest to this study. Most of the published conceptual models lay the foundation for understanding the generic phases and activities of NPD. They do not consider an NPD model with resource allocation, process standardization, product development cycle time that is necessary for contemporary NPD (Silva & Rupasinghe, 2016).

5. Project Management

Modern day Project Management (PM) should be a useful too that is available and applicable for today's challenging business environments. Therefore, current academic research should attempt to reflect these changes in order to be relevant (Bryde 2003). Research on project management is not only important for understanding projects. It is also important for wider purposes and can improve the understanding of management in general. (Soderlund, 2004). PM-focussed research has, again, contributed to a large research agenda for many. It is the current research that challenges the traditional Project Management theories that could be of value to this study. The emergent form of PM is described as being broader in its area of applicability than traditional PM. Perceived as a tool for managing all types of change within all types of organisation and its potential to manage a variety of activities Bryde (2003),Clelands & Ireland(2002), Lock(2013), Major, (2010), Packendorff, (1995),Soderlund,(2004) all contribute to modern PM theory. Packendorff (1995) claimed that project management is largely considered as a general theory that is not sufficiently empirical. Research views projects as tools and project management is seen as a set of models and techniques for the planning and control of complex undertakings. Soderland (2004) challenges fundamental theoretical issues related to project management research, he argues that a theory of projects cannot be built on merely empirical insights, but has also to be driven by a particular theoretical perspective. Current research on Project management has addressed the aspects of Risk Management (Ahmed, Berman, & Sataporn, 2007; Mu, Peng, & MacLachlan, 2009), Industry Clockspeed (Chavez, Fynes, Gimenez, & Wiengarten, 2012; Fine, 1998; Souza, Bayus, & Wagner, 2004), Contingency Theory (Caniato, Caridi, Moretto, Sianesi, & Spina, 2014; Chavez et al., 2012), Systems Thinking (Sheffield, Sankaran, &

Haslett, 2012) as all areas of approach that influence and determine how project management can run efficiently in the contemporary business world. It is the research from these areas that may be particularly influential to the development of new business models for Fashion Product Development.

6. Findings of the exploratory research

From the literature reviewed in three key areas there seems to be limited research in the field of Fashion Product Development and there are relatively few theoretical models that support the process. These few, however, are considered dated and do not consider the changes in the industry and demand-led environment of contemporary retailing. Research from the field of New Product Development is vast and considers many different aspects and elements that impact the process. The more recent models consider a variety of ideas and influence to form a reflection of product development that is applicable to a variety of industries. These use the ideas of cross functional, network activities, multi convergent and evaluation processes to develop a more current and multi-disciplinary, participant and evaluation led model.
However, the lack of discussion of time scales and product type in the models in both fields suggest the investigation that will drive this study. Project Management research has added interesting ideas and concepts that can be applied and utilized. The research addressing the areas of time, cost, resource and people planning, as well as links with more specific areas of risk management, Industry Clockspeed, Systems Thinking and Contingency Theory may be influential to this research and the development of a new business model that is applicable to contemporary retailing fashion product development processes.
A combination of these three areas of research will form the basis of this research. The table below identifies the key themes for this study.

	Fashion Product Development	**New Product Development**	**Project Management**
Strength	Area / Stage and Activity specific NICPPD Model (May-Plumlee & Little, 1998) – detailed and specific	Area / Stage specific however, variety of model styles investigated, Current model - The NPD Process as a series of linked activities (Trott 2008) Emphasis on evaluations Indication of missing stages where applicable	Detailed planning Time Scales, Consideration to Cost, Resource, People planning Specific tools to aid How to manage and process key information effectively. Specialist areas to consider; Risk management, Contingency theory,

			Industry Clockspeed, Systems Thinking
Limitation	Limited models and research NICPPD Model (May-Plumlee & Little, 1998) - could be considered too much detail and difficult to understand Model are of sequential nature Little emphasis on evaluations of stages before continuation	Generic can be applied to apparel – no consideration to impact of environment and industry	Vast information on initial planning stages Continuous projects not widely discussed
Similarity	Areas / Stages No consideration of time scale and how long these processes can take No discussion of product type that could dictate the model style	Areas / Stage No consideration of time scale and how long these processes can take No discussion of product type that could dictate the model style	Sequential stages Recognition of overlap and feedback (similar with NPD)
Difference	Industry specific Terminology and environmental	Research more in depth into the variety of types of models or ideas that can apply to the process Deeper understanding of the process	Vast research area, Deeper understanding of process

Table 1. Key Themes identified from literature review of FPD, NPD, and PM

7. Conclusions

From the research into the three research fields it is clear that there are associations and theories that can be applied to develop a new business model for contemporary retailing in the UK High Street. Whilst it may seem that there are some existing Fashion Product Development models such as NICPPD and PPDICR (May-Plumlee & Little, 1998; May-Plumlee & Little, 2006) that are detailed and address the process, it is the challenging time scales, short product life cycles, unpredictability and management of the process that need to be addressed in research. The review by Silva & Rupasinghe (2016) of NPD models supports

this idea. New Product Development models and associated theories may not be specific to the apparel fashion industry but offer some interesting ideas on Network , Mutiple Convergent and Evaluation that can be utilised and applied to Fashion Product Development Models. As Silva & Rupasinghe (2016) suggest resource allocation, process standardization, product development cycle time are areas of Project Management theory that can be applied to the existing Fashion Product Development models. It is these additional research ideas and management information that are specific to the apparel industry that may give a more realistic and applicable business model for contemporary retailing issues.

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