

LEVEL 7 ASSESSMENT SPECIFICATION

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Programme:	DBA		
Module:	Approaches to Research and Academic Communication		
Module code:	HKBM7000	Contribution to Overall Module Assessment (%):	40%
Lecturer:	Dr. Luk Chung Leung	Internal Verifier:	
Assignment Title:	In-class Presentation	Time Allowed:	15 minutes
Submission deadline:	18 July 2020	Return date of provisional marks & written feedback:	7 September 2020
Submission method:	Each students needs to present to the class a summary of the research proposal within 10 minutes. The presentation is designed to gauge the student's ability to communicate and present information related to research and academic matters. A soft copy of the PowerPoint slides used for the presentation should also be submitted via Turnitin before the presentation.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

The Impact of the Consumer Involvement in Big-Data New Product Development (NPD) in the Apparel Industry and Consumer Satisfaction of New Product

By

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Presentation for the Degree of

Doctor of Business Administration

University of Wales Trinity Saint David, UK

Industry Review

- Global clothing and apparel market value at \$1.78 trillion (2019)
- Women's wear is largest segment at 53%
- Asia-Pacific as the largest apparel market at 37% of global market
- Fastest growing regions expected to be Asia-Pacific and Africa, at CAGRs of 15.4% and 14.3% respectively by 2022
- Most gain in market size: China by \$193.4 billion (by 2022)
- Major players: NIKE Inc., Adidas AG, Inditex, H&M, Fast Retailing

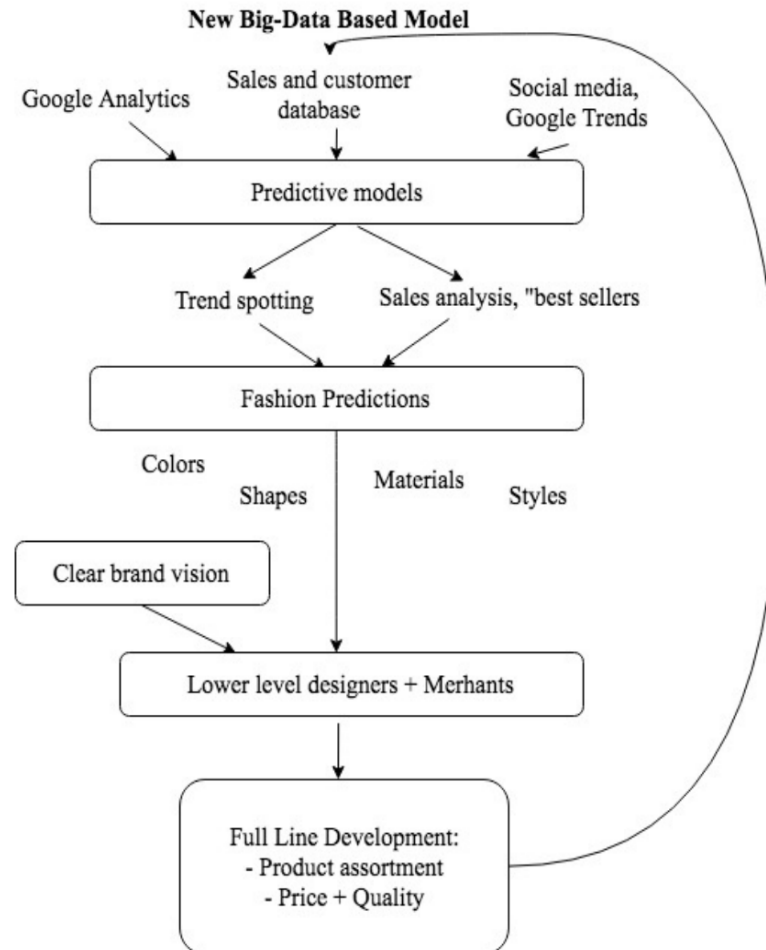
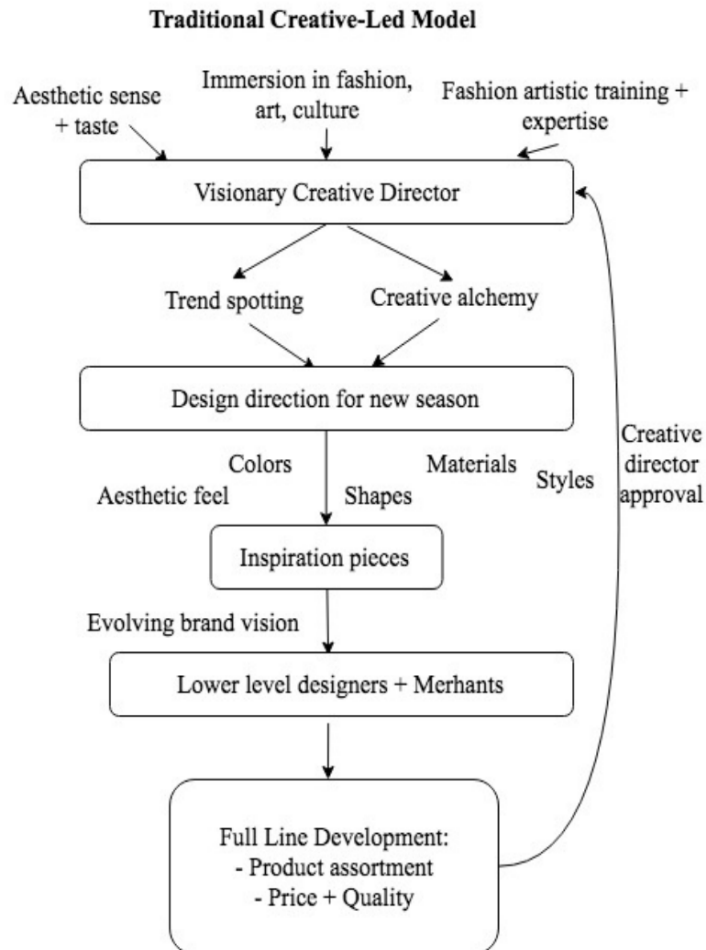
Introduction

- Big data as ‘4Vs’ of volume (quantity of data), velocity (speed of data generation), variety (different types of data) and veracity (data trustworthiness).
- Big data being increasingly introduced in ‘trend forecasting, supply chain management and analysing customer behavior, preferences and emotions’ (Jain et al., 2017).
- ‘Basic principle of speculating demand early’ (cited in Ahmad, 2012): The apparel industry has traditionally followed a ‘design-driven’ business model (Bertola and Teunissen, 2018) following the trend and market predictions of the designer with collections designed at a minimum, a full season, ahead of retail.

Introduction (cont'd)

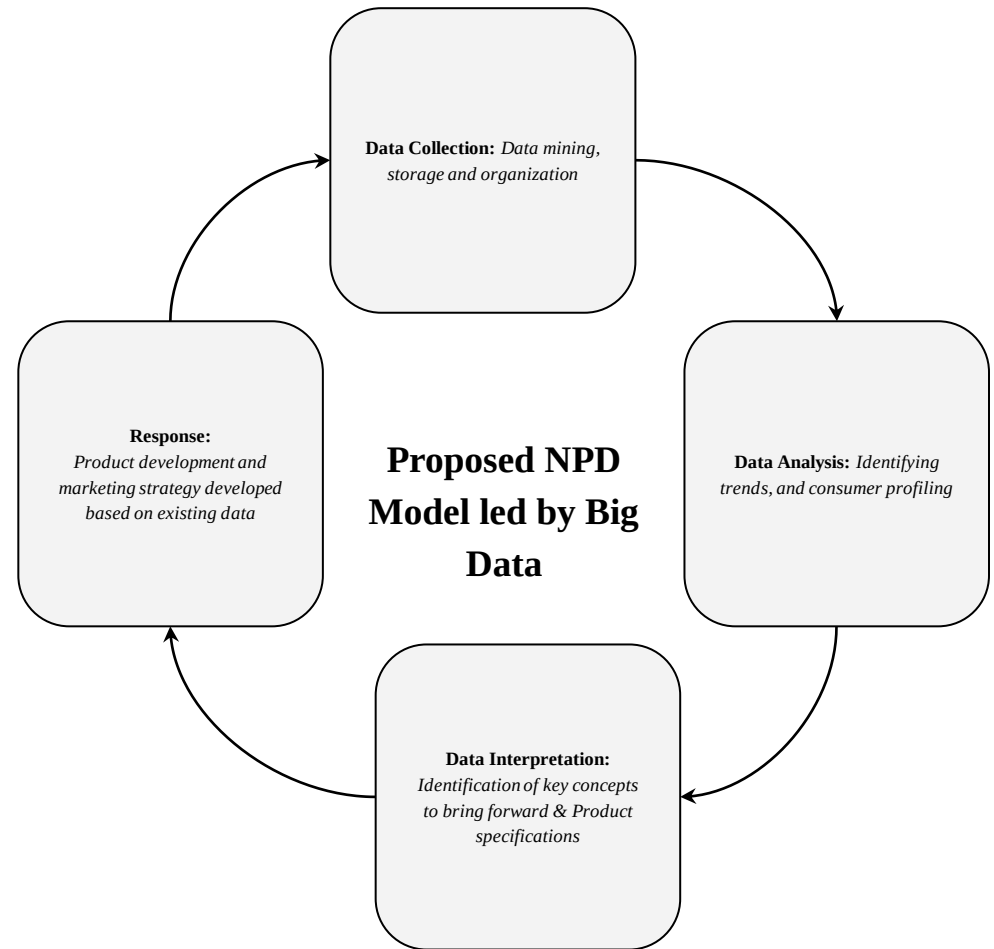
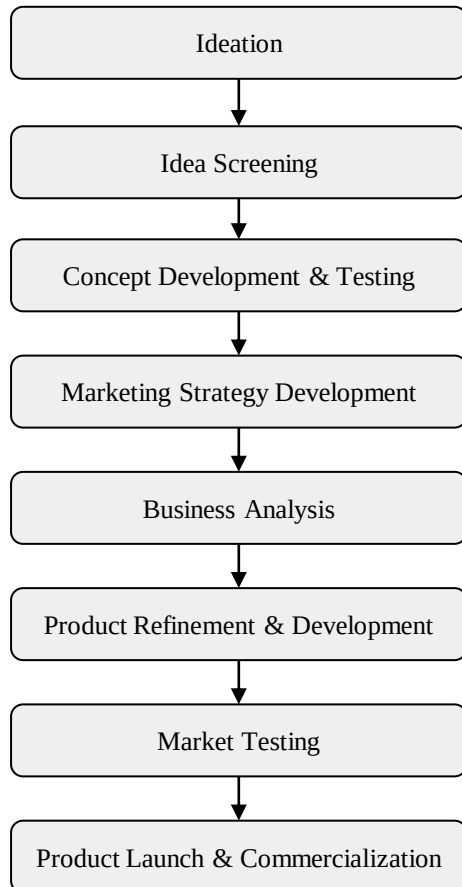
- Potential to disrupt this product design process by being 'consumer-driven' based on consumer insights derived from big data.
- Data collection and analytic become key areas of study, giving rise to a variation of new NPD models from 'predictive' NPD to 'mass customisations' models.

NPD Models



NPD Processes

Traditional, Existing NPD Model



Big Data Consumer Involvement Models

- **Consumer Involvement in Data Collection (CIDC)** -
defined as a scenario where customers *passively* provide data for collection
- **Consumer Involvement in Data Interpretation (CIDI)** -
defined as a scenario where customers *actively* provide, analyze, interpret data and provide feedback in the NPD process

Consumer's Needs Disparity (CND)

- Consumer Needs Disparity is defined as the measurements of functions and attributes of a product, on which consumers make their purchase decisions on. An example of a category of apparel product with low CND value would be a pair of socks, in which with the considerations in NPD, of material suitable for summer or alternatively, material suitable for winter, might be enough to meet the most basic functions of the apparel product addressing the consumer's needs. An apparel product category with relatively higher CND value than socks would be the category of T-shirt, in which more different attributes of the T-shirt, such as long sleeves or short sleeves or sleeveless, in addition to the choice of materials, should be considered in the product development process to address different consumer's needs.
- In addition to literature reviews of previous studies in relations to the disparity of consumers' needs in relation to a product, a preliminary investigations in the 10 most common apparel categories to determine their CND value will be conducted and justified prior to the tests of the hypothesis.

Research Question

- To what extent can the use of big data in new product development (NPD), with Consumer Involvement in as Data Collection (CIDC) and Consumer Involvement in Data Interpretation (CIDI) in the apparel industry improve consumer satisfaction of a new product

Objectives

- Investigate the dimensions of CIDC and CIDI in NPD and their impacts on customer satisfaction in new product in the apparel industry
- Investigate of moderation effect of consumers' needs disparity (CND) between CIDC and CIDI in NPD and customer satisfaction in new product in the apparel industry

Hypothesis

- ***Hypothesis 1: Consumer Involvement in Data Collection (CIDC) increases customer satisfaction to new apparel product***

Alton (2018) states that ‘Big Data analytics on purchasing behaviour from past seasons can help ascertain which fashion qualities or elements shoppers may respond favourably to in the future’ (cited in Silva, Hassani and Madsen, 2019). The collection of existing, big data of consumers can be used to identify and forecast trends and apparel attributes that correlate directly to consumer preferences. Thus, the independent variable being tested is the adoption of big data in the NPD process under the CIDC procedures and the dependent variable to be measured is the change in customer satisfaction in new product.

- ***Hypothesis 2: Consumer Involvement in Data Interpretation (CIDI) increases customer satisfaction to new apparel product***

With the potential of highly standardized offer, owing to the accommodation of wider demands, “the desire for differentiation with respect to other consumers and the wish to participate in the product design has risen sharply among consumers”. (Grimal and Guerlain, 2014) With this second perspective of CIDI in NPD, customers provide data such as their preferences, conduct data analysis identifying specific focus of data that might be relevant to their own needs, and engage in dialogue and interaction with the suppliers in product development processes, giving feedbacks and user experiences, sometimes beyond the production stage until the final product commercialization.

Hypothesis

- ***Hypothesis 3: Consumer's needs disparity (CND) moderate positively between CIDC and customer satisfaction to new apparel product***

In the apparel market, multiple evaluative criteria such as design, colour, comfort, fabrication, fit, and workmanship are considered for customer satisfaction for a singular product. In product categories with more attributes addressing consumer's need, in this respect, individual preference for each criterion and the overall needs of the consumer can be very diverse. In the CIDC perspective, with the primarily objectives being predicting wider trends to accommodate broader demands, it can be expected this approach would have a higher degree of accommodation of the diversity of needs. In this regards, a positive moderation effect is expected.

- ***Hypothesis 4: Consumer's needs disparity (CND) moderate negatively between CIDI and customer satisfaction to new apparel product***

In the CIDI perspective, where customers are to analyze the data according to their own needs, engage in dialogues and interactions with the suppliers in the product design development process, in addition to providing data to the suppliers, it is expected consumers' needs disparity might have negatively moderation effect to the relations between CIDI and customer satisfaction to a new apparel product.

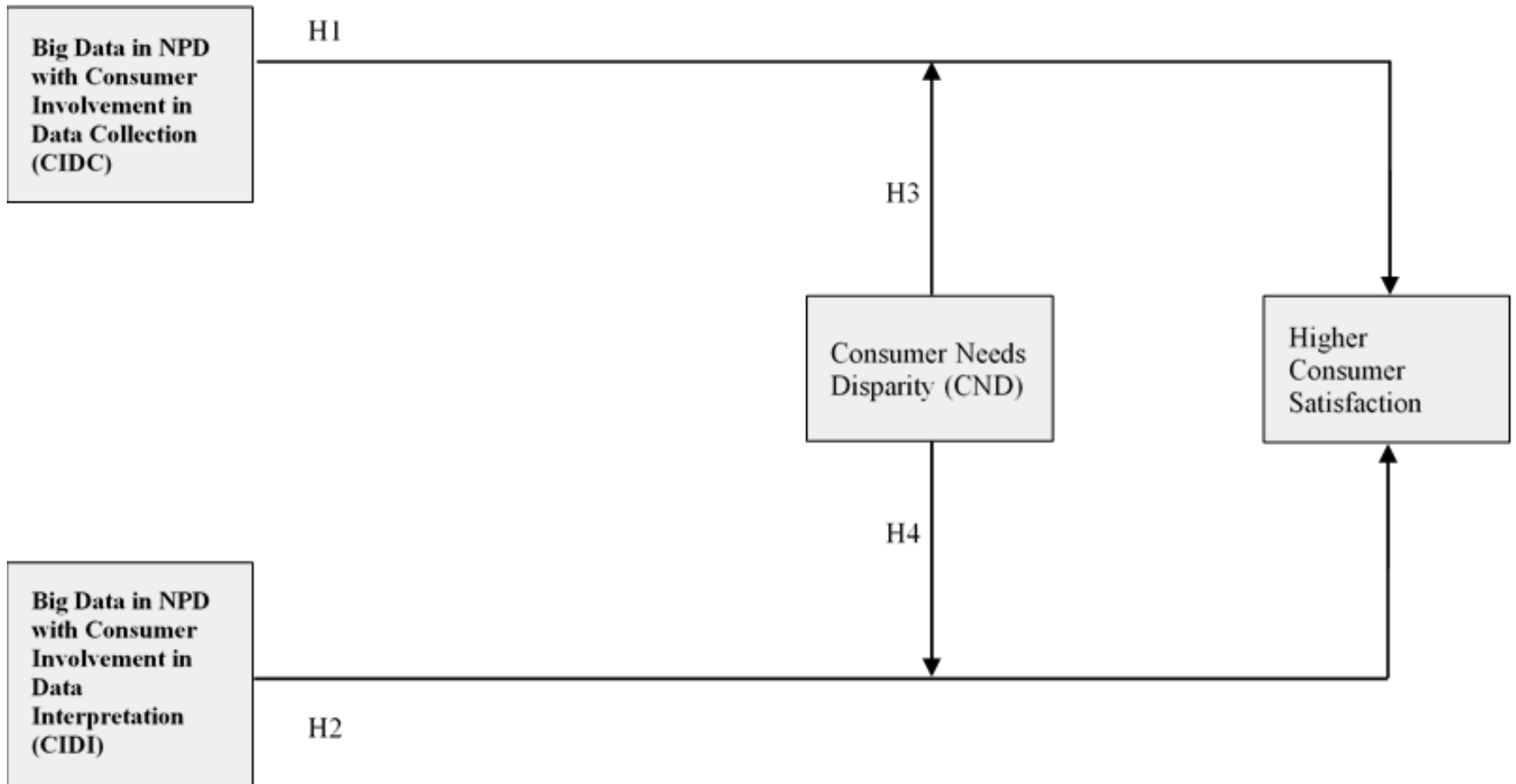


Figure: Graphical model of intended hypothesis to be tested

Method

Design and Sampling

- A survey questionnaire with multiple scale items, including the types of NPD processes, intrinsic criteria in relation to product satisfaction, and dissatisfaction will be conducted for hypothesis testing. Types of NPD data analytic, natures of customers needs, will be measured as constructs. Evaluative criteria adopted for intrinsic criteria would be design, colour, fabric, comfort, fit and workmanship, which are the common product satisfaction factors for apparel products. Items are rated on a 7-point Likert Scale with response anchors such as 'strongly agree' and 'strongly disagree' at the opposite spectrum of the scale. Constructs and scale items are shown in the table in the next slide.

Method

Construct	Scale Item
Consumer Involvement in Data Collection 7-point scale 1 = Strongly Disagree 7 = Strongly Agree	In the new product development process Customers acted as data providers only Collection, analysis, adaptation of data by the firm to generate new products
Consumer Involvement in Data Interpretation 7-point scale 1 = Strongly Disagree 7 = Strongly Agree	In the new product development process Customers generated, analyzed and utilized data to generate new products Customers have opportunities to give feedback to drive product development
Product uniqueness 7-point scale 1 = Strongly Disagree 7 = Strongly Agree	New product share more common attributes with industry standard product New product have more unique attributes
Product Satisfaction 7-point scale 1 = Completely Dissatisfied 7 = Completely Satisfied	Design Colour Fabrication Comfort Fit Workmanship
Customer Retention 7-point scale 1 = No Retention 7 = Extremely High Retention	Customers are less likely to return for future purchases Customers are likely to return for future purchases
Consumer's Needs Disparity 7-point scale 1 = Extremely Low 7 = Extremely High	Customers have diverse needs Customers are not satisfied with standardized design Customers have diverse preference of individual modular product features
Number of Development Teams Involved	Number of product development teams involved in the NPD process
Size of Firm	Number of total employees in the company

Method

Sampling Procedures

- A prescreening questionnaire will be sent out to the managers of apparel companies in Greater China to ensure they are the target demographic. Questions include:
 - Respondent must be on a managerial position and that he / she has sufficient knowledge in the area of NPD to answer the survey question
 - Respondent's firm(s) must conduct NPD activities within its business
 - Respondent has access to customer feedbacks on the new product
- Currently there are approximately 15,000 firms involved in either B2B or B2C manufacturing activities of apparel products in China. This research aims to recruit 375 company representative participants for the study.
- Exploratory Factor Analysis (EFA) would be conducted before Confirmation Factor Analysis (CFA) to test the hypothesis

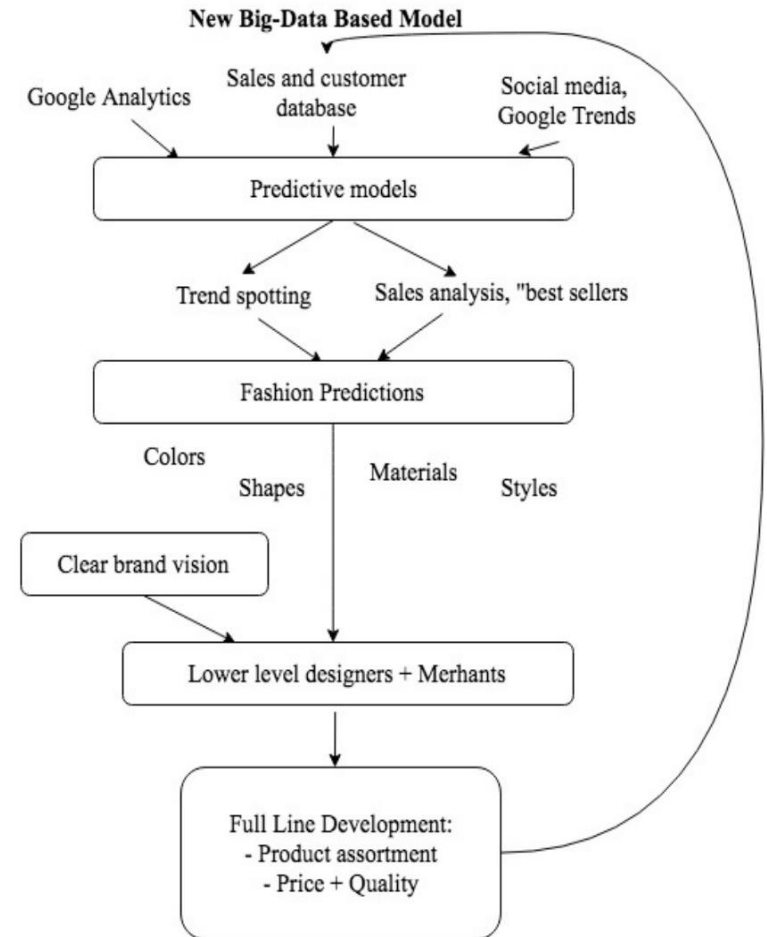
Method

Limitations

- In this study overall customer involvement in NPD is considered. However, in a naturalistic scenario of NPD, the NPD processes are often very complex and contain multiple stages, in some cases these stages might take place across different departmental teams inside or outside of the firms. In this regard, CIDC or CIDI implementations at different stages very likely yield different results in terms of their influences in the NPD processes. In addition, sampling used in the study are managers and engineers in the manufacturing industry, which limits the generalization of findings..
- Second, new product satisfaction is measured on intrinsic criteria feedback from customers, obtained by the firms. Although this might provide some insights into how customers' needs might drive innovation in product development, new product's financial performance and size of market share, which are more reflective of market adoption of the new product, are not captured or measured in this model.
- The resulting sample composition of CIDC and CIDI might be imbalanced due to the relatively new phenomenon of adoptions of big data analytic in the industry in particular with the case of consumer involvement in data interpretation.
- With these limitations in mind, the study is still deemed relevant because this would provide a direct measurements between customer satisfaction of new product against different NPD methods with various degrees of customer involvements.

Implication

- Customer-driven NPD is infrequently studied in current NPD literature (Tiedemann, Johansson and Gosling, 2018). Particularly in fashion design, the existing literature demonstrates a lack of consensus on the effectiveness of utilizing big data analytics (DuBreuil and Lu, 2019).
- 'Customer involvement, customer co-creation and customer input into the design process is still in its infancy' (Tiedemann, Johansson and Gosling, 2018), and big data is one method to which enhanced customer engagement could be utilised to strengthen the NPD process. The lack of empirical studies in the area of big data in the apparel NPD process reveals an opportunity for further study to improve upon existing models in apparel product development, supply chain management and procurement strategies.
- This study aims to enrich and advance the understanding of big data's current and potential role in NPD. Hence, providing an initial framework towards the future integration of NPD in apparel design to guide future product development innovation, NPD organizational change.
- With the scarcity of talents to implement the 'creative-led' NPD model, China apparel firms have the incentive to implement big data driven NPD models.



Work Plan

#	Task	Planned Start	Time in Weeks	Planned Completed	Month																
					M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J
	Advanced Literature Study & Critical Review				■	■															
	Sample selection & preparation of list of contacts for primary data collection					■	■														
	Designing Interview & Surveys for Primary Data Collection					■	■														
	Interview & Survey Pilot Test					■	■														
	Data Collection						■	■	■	■											
	Data entry & analysis									■	■										
	Draft Key Findings & Evaluation of Results									■	■										
	Submission of research results for feedback									■											
	Thesis Compilation									■	■	■	■								
	Review Thesis Draft & Submission for Feedback												■	■	■	■					
	Final Thesis Submission															■	■	■	■	■	■

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