

# A Study of AI in Fast Fashion Brands Using IBM Watson -A Dialogue Based Recommendation Engine



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## Abstract

Artificial Intelligence is not bizarre to the apparel retail industry anymore. Increasingly, all the brands are boosting their retail using various AI technologies, providing themselves with a competitive edge. The North Face, a brand focused on outdoor apparel, equipments and footwear, set in motion a unique online customer engaging experience powered by IBM's Watson, an Artificial intelligence dialogue-based recommendation engine. To get their AI show on the road, The north face has provided customers with technological experience in-store as well as online, where customers can tell IBM Watson what they are looking for using natural conversations, and it will give the recommendations according to their need. The purpose of this study was to find out how consumer buying behaviour changes in organized retailing and to know if IBM Watson is introduced to fast fashion brands how it would improve the customer shopping experience. This would help us to know on what measure the customers are actually inclined towards the in-store experience.

The study was conducted using structured questionnaires from a sample of respondents who purchase online as well as offline. Primary data was collected using a structured questionnaire and the secondary data was collected from various research papers. Chi-Square technique was applied and the chi value was computed to test the formulated hypothesis in order to find the relevance of consumer buying behaviour in organized retailing. It also aims to explore the strength of the relationship between the factors and consumer decisions in terms of their buying behaviour and customer satisfaction.

**Keywords:** IBM watson technology; Customer buying behavior; In-store and online purchase experience; Artificial Intelligence; Dialogue-based recommendation engine

## Introduction

North Face -an American apparel brand, used IBM Watson artificial intelligence technology in the retail environment. It is one of the first companies to use this technology [1]. Further, in 2016, The North Face launched a mobile app with IBM Watson to assist the customers to find a suitable product skipping all the hustle in finding the required apparel product. Their aim was to minimize the customer's effort to find the perfect product for their planned events and provide them with assistance to narrow down the products. When a customer enters a fast fashion brand store which usually has a plethora of options, he/she need not scroll 100 products.

Instead, they can simply tell IBM Watson about the required product and their preferences in style, colour, size, etc. and IBM Watson will provide a narrowed down list of the products similar to the preferences. IBM Watson technology helps in removing the friction and increases the conversion rates for The North Face. Fast fashion stores can use IBM Watson as a data source. Looking at the various metrics provided by IBM Watson such as

bestsellers, the highest rate of purchase of a product, etc., fast fashion stores can use this to trend future forecasts and plan their collections and lines for upcoming seasons. This will result in a higher loyal customer base and cut down the extra costs on customer assistance.

## Objective of the Study

To analyze the customer's response towards using Watson technology by IBM for fast fashion apparel brands.

To analyze how the introduction of Watson technology by IBM will affect the customer buying decision in stores as well as on online platforms.

## Literature Review

To equip AI to deal with real-world, IBM challenged its computer and data scientists to create a program that could defeat human contestants and eliminate the chaos involved in selecting a product in retail [2]. Artificial Intelligence is no more strange to the

world of apparel retail. Customers are getting inclined more and more towards digital shopping experiences in a world driven by AI. This AI system is a smart data discovery and analysis solution that allows users to discover and refine product selections, with almost immediate results. According to a press release of IBM in 2015, "In keeping with The North Face brand's mission of applying technology to transform the retail experience customers can now use natural conversation as they shop online via an intuitive, dialogue-based recommendation engine powered by Fluid XPS and receive outerwear recommendations that are tailored to their needs [1]".

Artificial Intelligence starts by asking where, when, and for what activities you will be using the jacket. Based on the weather forecast for that location and the end user's gender, it narrows down the search to few options. Based on the activity it rearranges the alternatives from "high match" to "low match". This technology will allow customers to save time and skip going through various jacket options and just focus on the one's with their preferences. While the app is not perfect, it will keep learning (Sanz, L. (n.d.) The north face & Watson: Bringing the in-store experience online| visual commerce & marketing platform). The software continues to improve with every use and learn from users. During its trial period, IBM reported that customer engagement averaged two minutes in length, and the platform had a 60 per cent click-through rate to try product recommendations [1]. The app evolution will include building on the background and delivering more information to enhance the experience [3]. In a retail environment riddled with 'big data' from social media communication to customer reviews, brands are using IBM Watson to turn this data information into meaningful customer insights that will enhance digital shopping experiences.

### Research Methodology

The purpose of the study is to know how much the customers are familiar with the IBM Watson technology and will it change the

consumer buying behaviour in organised retailing. The research involved the collection of both primary data and secondary data. A structured questionnaire in the form of google form had been designed to collect the primary data. The questionnaire was tested for reliability. The secondary data has been obtained from various journals and official websites. The data has been collected from different parts of India from 150 respondents. Statistical tools are used for the analysis of the data collected using questionnaires. A Chi-square test had been used to find out the internal consistency between the multiple measurements of a variable in a questionnaire [4-8].

### Data Analysis and Interpretation

The primary data was collected from 150 respondents, in which the first few questions were to study the demographics of the respondents (Table I). Out of 150 respondents, the majority of people prefer having both online and offline choices i.e., 112 respondents (73.7%) both, 33 respondents (21.7%) offline, and 7 respondents (4.6%) online. The question was asked to find out the importance of in-store experience to know on what measure the customers are actually inclined towards the in-store experience. A question was asked to find the relation between gender and their preference for buying platforms. Table 2 records the responses of the respondents. 16 males (10.6%) and 17 females (11.3%) of the total people prefer offline buying platforms, 5 males (3.33%) and 2 females (1.33%) of the total people prefer online buying platforms whereas 61 males (40.6%) and 49 females (32.6%) of the total people prefer both online as well as offline buying platforms. This clearly implies that there exists no relationship between gender and buying platforms. People prefer both the platforms i.e., online and offline physical stores for buying fashion accessories. Since our calculated value of chi-square is 1.31 which is less than 5.991(0.05), therefore we can conclude that people prefer both the platforms i.e. online and offline physical stores for buying clothes and accessories [9-11].

**Table 1:** Demographic profile.

Variable	Characteristics	Frequency	Percentage
Gender	Male	83	54.7
	Female	67	45.3
Age	18-25	68	44.7
	26-35	21	14
	36-45	14	9.3
	Above 45	49	32

**Table 2:** Observation table.

	Male	Female	Total
OFFLINE	16	17	33
ONLINE	5	2	7
BOTH	61	49	110
TOTAL	82	68	150

## Current Trends in Fashion Technology & Textile Engineering

As shown in Figure 1, the question was asked to understand whether the customers are ready for the digitalization by introducing IBM Watson in mid-market fashion stores. 122(80.3%) of the respondents said that they would like to see digitalization in the mid-market, 3(2%) said no whereas 27(17.8%) respondents were not bothered with digitalization in fashion stores. A question was asked about the importance of the In-store experience to customers shown in Figure 2. This was asked to find out the value customers give to the in-store retail and give a path to further

questions in the survey to find out the impact of the AI assistance IBM Watson would bring in. Out of the 150 responses, the majority of customers value the In-store experience of the fashion brands. 62 respondents (40.8%) voted on the scale 8, 25 respondents (16.4%) for 10 and 24 (15.8%) for 9. Since the majority opted for the scale 8 or above, it can be considered that these are the times when customers value the in-store experience which can be improved by providing them with AI digital shopping experience in retail.

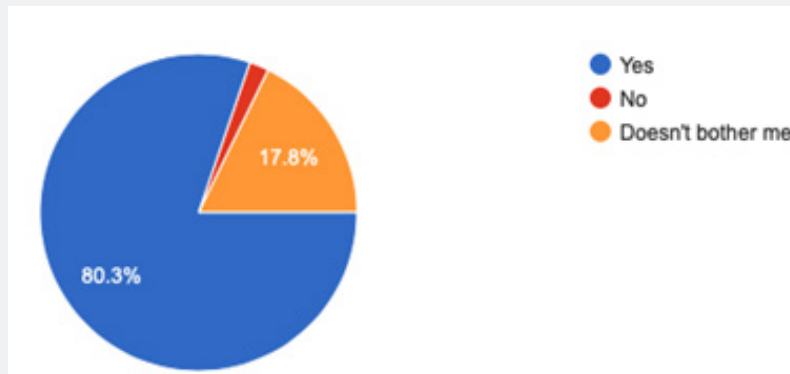


Figure 1: Respondents opinion whether they would like to see digitalization in mid-market.

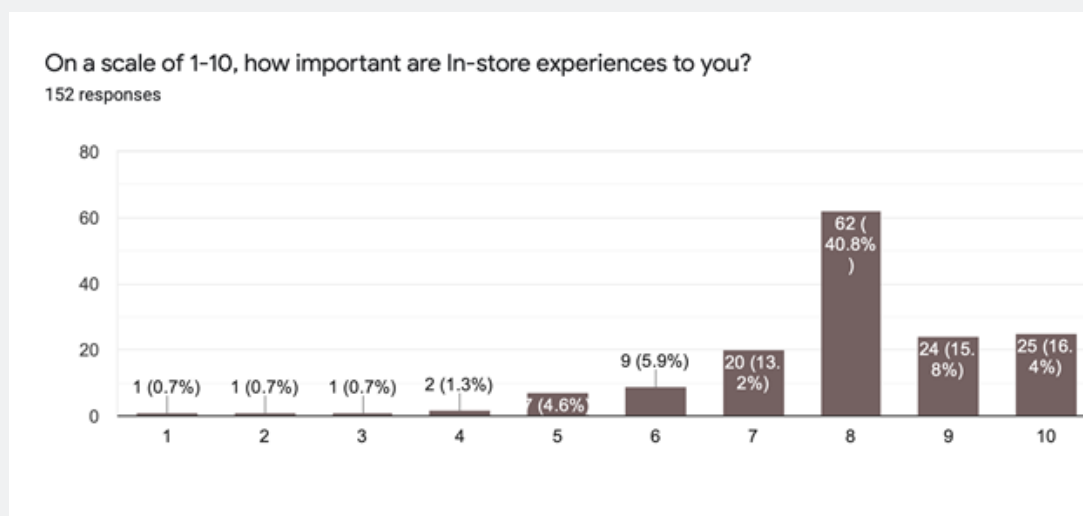


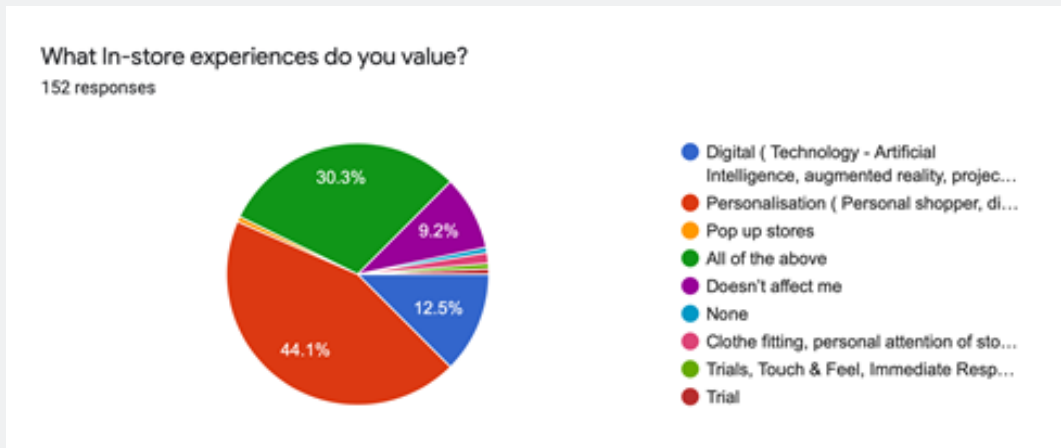
Figure 2: Customer value to in-store experience.

A question was asked to understand the psychology of customers that what kind of in-store experiences they value and the kind of in-store experience they would like to see more. 46(30.3%) respondents agreed for all of the above i.e. digitalization (Technology - Artificial Intelligence, augmented reality, projectors and touch screens), personalization (Personal shopper, discounts, customer service) and pop up stores, 14(9.2%) respondents had opted for no effect of personalization. Custom responses were also

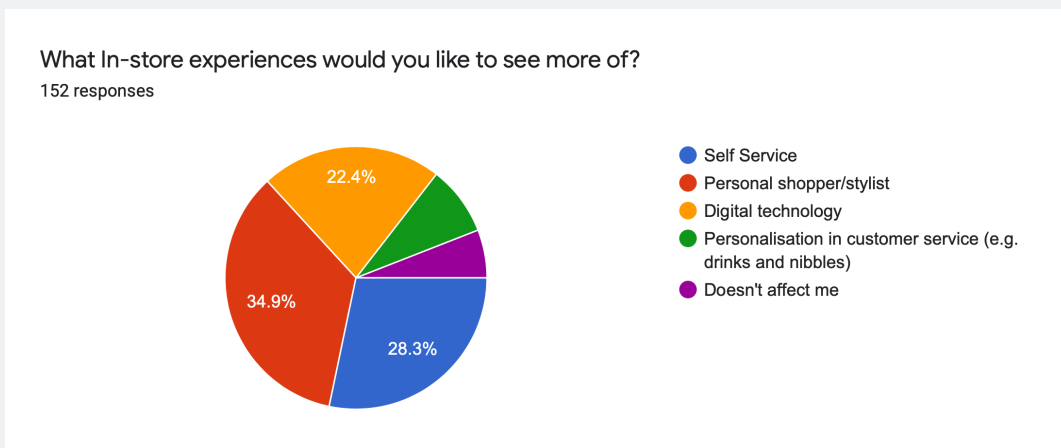
recorded as shown in Figure 3. But majority of the respondents, 67(44.1%) value the personalized in-store experiences. From the results, we can imply that personalization of in-store experience through digital improvisation will be valued much more than a regular in-store experience. Similarly, to understand the further psychology, a question was asked that what in-store experiences would they like to see more of. It was asked to see if IBM Watson would simplify customer in-store experiences and they would

like digitalization in mid-market Fashion stores as shown in figure 4. Majority of the respondents i.e. 53(34.9%) opted for personalization, from which we can estimate that IBM Watson will definitely improve the experience as it is all about digital personalization, as for digital technology 34(22.4%) respondents

opted. 13(8.6%) respondents opted for personalization in customer service, 43(28.3%) for self-service and 9(5.9%) went for no effect of personalization on their shopping experience (Figure 4-6).



**Figure 3:** In-store experiences that customers value.



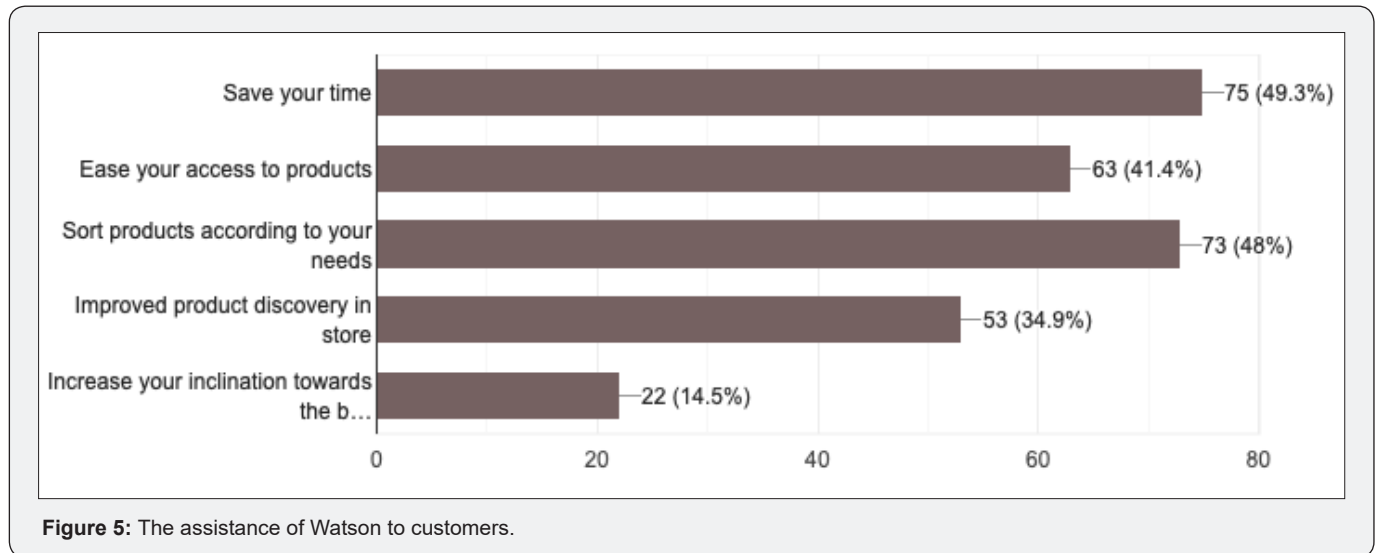
**Figure 4:** In-store experiences that customers would like to see more.

A question was asked to identify the relation between the in-store experience of customers and the introduction of IBM Watson in the fast fashion stores and the different parameters of IBM Watson's assistance to customers. Figure 5. records the responses of the respondents related to the assistance of IBM Watson to the customers and how IBM Watson would simplify the in-store experience. 75 respondents (49.3%) agreed that IBM Watson would save their time, 63 respondents (41.4%) said that it would ease access to products, 73 respondents (48%) agreed

that IBM Watson would help the customers to sort products according to their needs and 53 respondents (34.9%) agreed that it would improve the product discovery in-store whereas on being asked if the implementation of IBM Watson would increase their inclination towards the brand only 22 respondents (14.5%) agreed. Hence, the Watson technology will help the customers, save their time and ease their access in fast fashion stores. A question was asked to identify whether the implementation of IBM Watson technology in the stores would affect brand loyalty,

customer attraction, and in-store personalization as shown in figure 6. Table 3 records of the responses by the respondents. 6.66% (10) consumers disagree, 15.3% (23) consumers strongly disagree, 20.6% (31) respondents neither agree nor disagree, but 49.33% (74) respondents agree and 8.66% (13) respondents strongly agree, i.e., the usage of IBM Watson technology in the

favourite fast fashion and apparel stores of the respondents would increase or develop the brand loyalty. This clearly implies that almost more than half of the sample agrees that implementation of IBM Watson technology will develop or increase brand loyalty whereas less than half of sample disagreed and were neutral.

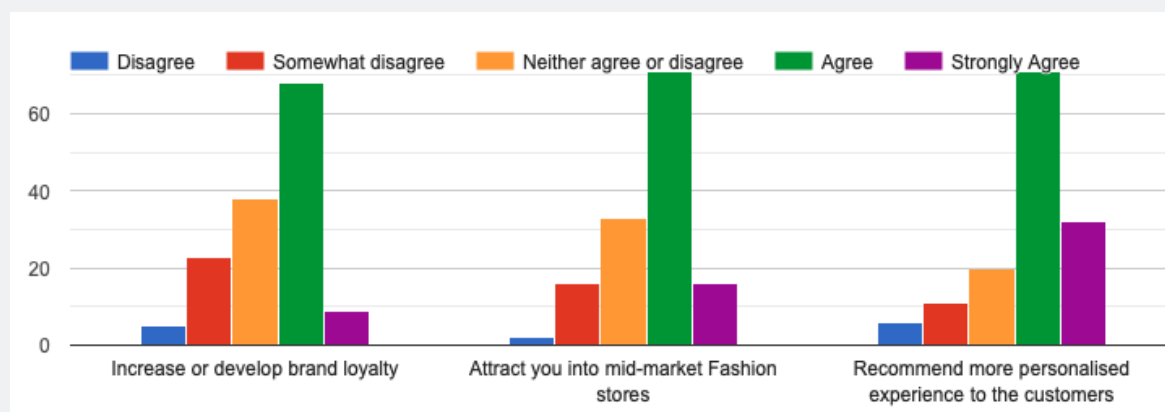


**Table 3:** Rating of opinion on usage of IBM Watson.

Question	Disagree	Strongly Disagree	Neither Agree Nor Disagree	Agree	Strongly agree
Will the usage of IBM Watson technology: Increase or develop brand loyalty	10	23	31	74	13
Attract you into mid-market Fashion stores	15	20	25	75	15
Recommend more personalised experience to the customers	11	17	20	74	28

Similarly followed was the next question whether the implementation of IBM Watson would attract the customers into mid-market fashion stores. 50% (75) respondents agree and 10% (15) respondents strongly agreed that the implementation of IBM Watson would attract customers into mid-market fashion stores whereas only 23.33% (35) disagreed or somewhat disagreed. While 16.6% (25) respondents were neutral about their statement. This clearly implies that almost more than half of the sample agrees that implementation of IBM Watson technology will attract customers into mid-market fashion stores. Third question in the same context was asked whether the implementation of IBM Watson would give a more personalized in-store experience

to the customers. 49.33% (74) respondents agreed and 18.66% (28) respondents strongly agreed that the implementation of IBM Watson would give a more personalized in-store experience to the customers whereas only 18.66% (28) disagreed or somewhat disagreed. While 13.33% (20) respondents were neutral about their statement. This was tested with the chi-square test and found significant. Hence, we can analyze and conclude that more than half of the sample of respondents agrees that implementation of IBM Watson technology will give a more personalized experience to the customers while less than a quarter of people disagreed and were neutral.



**Figure 6:** Graph representing customer response given to each criterion.

### Findings

#### Based on survey questions, it can be concluded that

**Analyzing the survey:** Our findings show that if fast fashion brands would work with IBM Watson, they may have an easy AI competitive edge in retail, offer an easy ordering interface and a more personalized in-store experience for customers on both online as well offline platforms. Our findings show that customers would like more digital experience in mid-market stores. And this can be done through an app or modified versions used by different fast fashion brands like North face. It would also allow customers to reorder supplies, track shipments, or chat about customer service needs.

**Availability of stocks:** IBM Watson technology can help the customers to know about the available products in the store without asking the salesperson or without roaming around in the whole store. They can easily find the product in the store just by asking IBM Watson.

**Expert advice and suggestions:** With the introduction of IBM Watson customers can get better access to available products in the store, their ratings, reviews, discounts, and similar items available in the store. IBM Watson can help the customers narrow down their choices based on their needs and can act as an expert advisor to the customers. IBM Watson would narrow choices customized to the customer's preferences.

**Time-saving and brand loyalty:** The study shows that IBM Watson would help people save time and ease their access. If IBM Watson Technology is introduced to fast fashion brands, it may engage customers and help the brand in various aspects whether it be brand loyalty, saving their time, etc. With reference to the data analysis and interpretation subsequent to primary and secondary research, our results confirm that the implementation of IBM Watson technology will improve the overall consumer shopping experience.

### Conclusion

#### Based on survey questions and hypothesis testing, it can be concluded that

Working with IBM Watson may offer an easy ordering interface for customers on both online as well as offline platforms and personalize their experience both ways. This can be concluded from the analysis of the question related to the store experiences in order to analyze the factors that matter to customers while in the store. We can conclude that usage of IBM Watson would sort products according to the customer needs and improve product discovery in the store. Based on the analysis of the responses, it was seen that customers value in-stores experience and are willing to use the Watson technology which will save their time as well as give them a more personalized experience as IBM Watson would sort the products and will guide them through the store. These findings are relevant because the more people in today's world enjoy shopping and the more they are satisfied with their previous purchases the more they are willing to repeat purchases that can lead to brand loyalty toward the brand and this may help in increase of sales.

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