

An Exploratory Study on The Rise of Voice Recognition Technology Usage in Organized Retail with Special Reference to Mumbai

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INTRODUCTION

Voice Recognition known as Automatic Speech Recognition (ASR) converts spoken audio into text, speech recognition technology and lets user regulate digital devices. Analog Digital convertor is used to convert analog signals to Digital. All types of voice recognition systems don't necessarily provide accurate output. High pitch and loud external sounds can generate inaccurate output. Without inbuilt noise recognition and cancellation technology, it is a challenge to record accurate voice command.

Keywords: Voice Recognition Technology, Adoption

REVIEW OF LITERATURE:

Simon, Paper (2007) opine that devices powered by voice recognition technology have incredible opportunity even though there might be reluctance to their adoption. Further, **White, King, Duncan (2002)** promote voice recognition as useful especially to measure behavior in different research options undertaken.

Shukla, Yadav, Chandradeep, Singh (2020) work highlights speech as the basic form of communication between people. Voice recognition converts voice sounds into corresponding text. Voice capturing and identification have important research challenges e.g., differences in speaker and language, environmental sound, word size, etc. This paper presents a holistic view of the acceptance of speech that describes various processes and summarizes the various methods used in the standard speech system. According to **Agrawal (2021)**, Voice purchasing is a variety of user experiences that can add many features to customer experience and influence how they interact during a product purchase with their smart devices. Discovery is an important and highly competitive feature of voice search and shopping. Developing voice search is a competitive area and presents

many opportunities as companies try to change search engine optimization strategies to incorporate direct voice search.

Sethuraman, Peter, Middela (2018) threw light on the different ways and methods of recognizing the word and its application to various domains. Their work aims to explain different features and limitations of these methods.

Mansour, Salh, Mohammed (2015) aims to develop a voice recognition system using a flexible timing algorithm, by comparing the speaker voice signal with pre-stored voice signals on a website and extracting key features of the speaker's voice using Mel-frequency cepstral coefficients which is one of the most major factors in achieving the highest accuracy of recognition. **Mari (2019)** Voice Commerce (or voice acquisition) has quickly become a hotbed of education, business, and industry research due to its rapid adoption and disruptive power to flexible purchases. As voice assistants enable voice purchasing to improve consumer preferences and habits, they will grow to have an impact on consumer behavior. In doing so, voice assistants may play an important role in consumer market relations and continually facilitate market interaction. These rapidly

changing market changes within the context of voice buying can have a detrimental effect on the brands of buyers and sellers. Further it will provide structure and guidance to researchers and advertisers to further explore this growing series of research is important.

Lastly, in Anusuya, Katti (2009) paper, important themes and developments made over the years to provide technical insight and appreciation of voice communication. It succinctly explained popular methods used in speech recognition systems..

SCOPE OF THE STUDY

Voice Recognition Technology is the next big trend enabling customer shopping experience in both online as well as brick and mortar retail. The study aims to understand the customer perception and retailers approach towards adoption of voice recognition technology.

PURPOSE

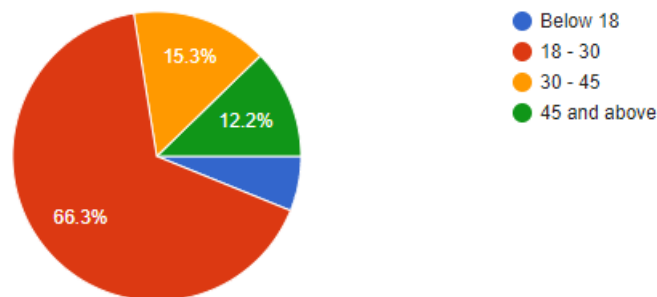
- To understand the adoption of Voice Recognition Technology by consumers and retailers.
- To understand the benefits and customer perceptions towards Voice Recognition Technology.

HYPOTHESIS

DATA ANALYSIS AND INTERPRETATION:

A) DEMOGRAPHIC PROFILE

Age



From the total respondents, 66.3% of respondents belong to 18-30 age groups because this category consists of tech-savvy youngsters who prefer voice recognition technology. While 15.3 % were from 30-45 age groups which majorly consists of retailers. Only 12.2%

H₁: There is significant association between age and desired offering of voice recognition software.

H₂: There is significant association between location specific tech savvy younger market and retailer connect using Voice Recognition Technology.

H₃: There is an association between annual income and adoption of voice based devices and application

H₄: There is a significant association between location and retail customer experience using voice- based technology.

METHOD OF CONDUCTING RESEARCH

This exploratory study used survey method. Inputs of 193 respondents was recorded to achieve the objective of the study. There were 106 males and 87 females. The people of the different age group were included as respondents for the study. The general demographic variables such as age, gender, location, annual income, occupation have been considered to explore its association with various parameters affecting consumers perception towards Voice Recognition Technology. To find the association and significance of the relationships with respect to demographic variables, the researcher has applied Chi square test.

respondents belong to 45 years and above age group and remaining were below 18 years of age

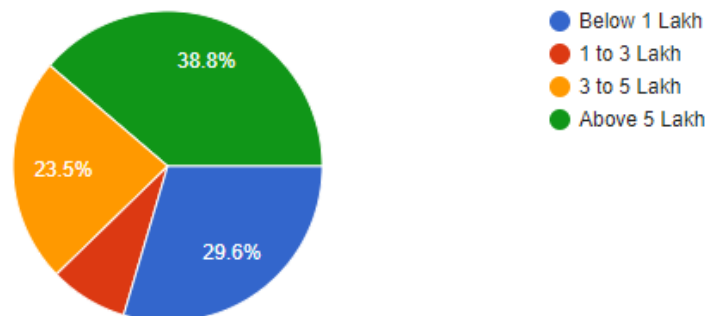
LOCATION

The survey was conducted in Mumbai, Thane-Kalyan region and Navi Mumbai.

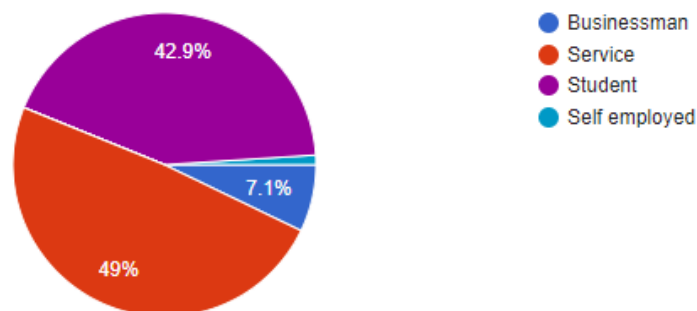
Being a mega metro and financial capital of India, Mumbai and its adjoining areas have access and penetration to latest technologies and voice recognition technology is not any different. Further, due to more respondents being from younger age groups, there is a visible trend towards adoption of Voice Recognition Technology.

Annual Income

From above pie chart, 29.6% respondents earn below 1 lakh (students, freshers, unemployed), 23.5% respondents earn 3-5 lakh. Majority of respondents i.e. 38.8% people earn above 5 lakhs (retailers) and remaining 8.1% respondents belong to 1 to 3 lakhs income group.



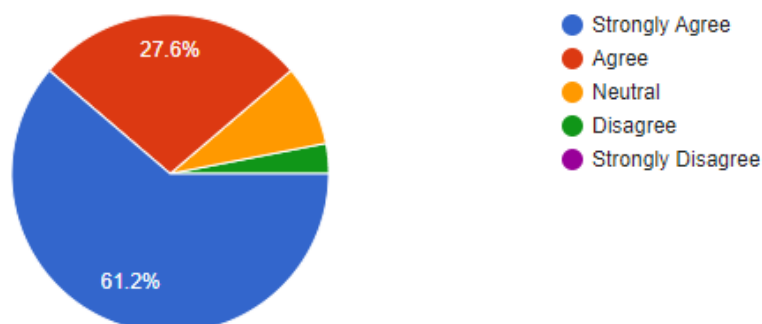
Occupation



According to the above pie chart, almost 43% of the respondents are students and 49% are service people. It is observed that they are more into technology and prefer voice recognition technology for their convenience. Almost 1% are self-employed.

B) SUBJECTIVE QUESTION

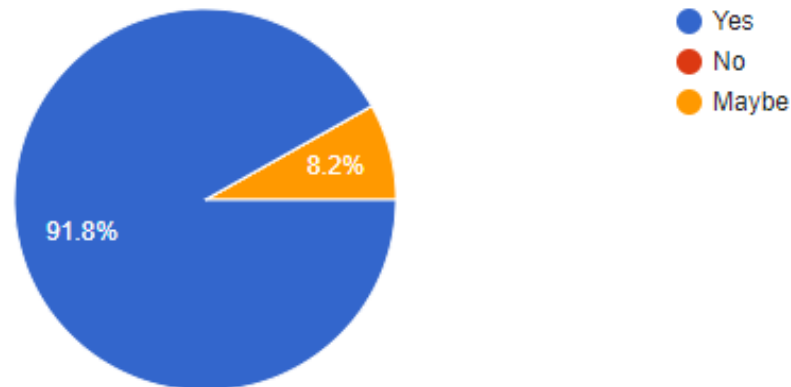
Do you believe that voice-activated technology is the best way for retailers to connect with the tech-savvy younger market?



Interpretation

61.2% of the total respondents strongly agree and 27.6 % respondents agree to the statement that the voice-activated technology is the best way for retailers to connect with the tech-savvy younger market. This could be because younger

Is Voice search the future of E-commerce?

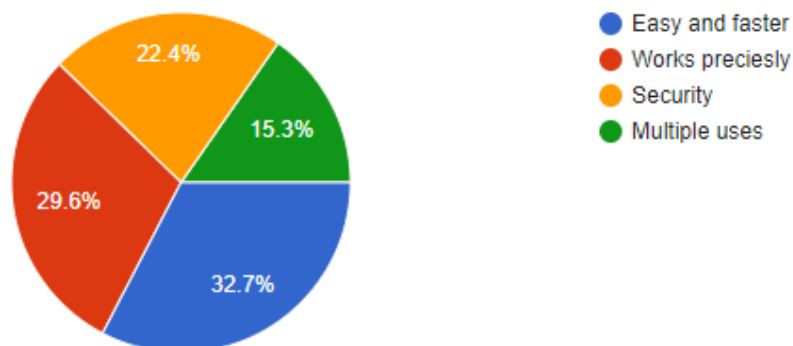


audience is into screenless browsing and using hands free devices which can interact with voice assistant with dedicated assigned options without typing. Those Retailers who use voice technology that is fast, easy to use, engaging, intuitive find favor of this age group.

Interpretation

Voice Technology is faster and handsfree and enables multi-tasking. Voice Technology is more convenient than typing out the requirement hence there will be more users for it. Further,

What are the benefits of voice-based devices and applications?



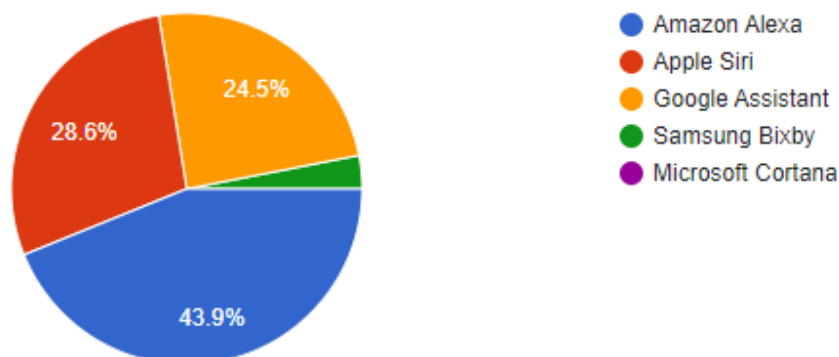
voice technology can be used in native languages that too is important for the growth of voice technology optimization. All this will lead to the growth of voice in Ecommerce as well.

Interpretation

Out of the total respondents, 29.6% of the respondents say that the voice based mobile apps works precisely because they have always experienced accurate and perfect result on their commands. 32.7% respondents say that these applications are easy and faster to operate, while

22.4% of them find these apps very secure because they feel their data is secure when they use such applications. Remaining 15.3% are benefited by its multiple uses, they are able to access voice search technology in various application for different purposes.

Which voice assistant software you prefer?

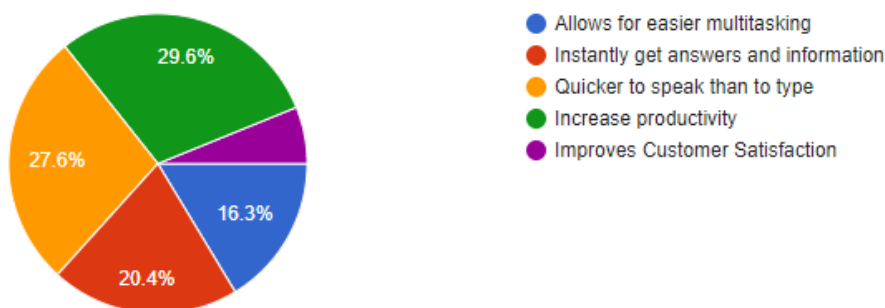


Interpretation

Majority of respondents i.e. 43.9% of them prefer Amazon Alexa voice assistant software because it comes with multiple advantages in the form of entertainment, information, deliver news. 24.5% of respondents prefer Google Assistant because it is inbuilt in all the android

devices, it acts as a personal assistant. Almost same percentage of respondents i.e. 28.6% of them prefers Apple Siri. Since they are the IOS Users and find it very convenient to use while travelling. Remaining respondents prefer Samsung Bixby.

What according to you are the major benefits of voice search?



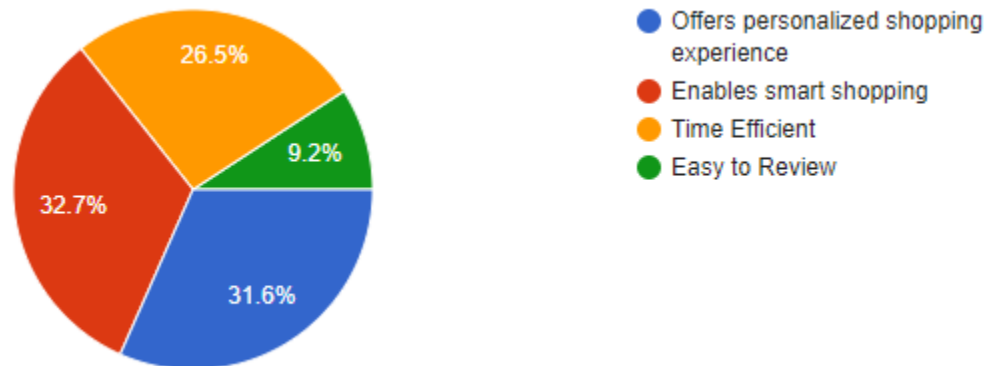
Interpretation

From the above pie chart, we can analyze that 29.6% of respondents are benefited by Voice Search because of increase in productivity. 27.6% of respondents find voice search as a quicker option to speak than to type because it directly saves their time. 20.4% of respondents find it very beneficial because they instantly get answers and information within seconds whatever they want. 16.3% of respondents say that it allows them for multitasking, they are able to access voice

search technology in various application for different purposes.

With voice technology innovations mushrooming, both customers and retailers are identifying new options and touch points to connect with each other. Further, shopping list created using voice display inclusions has a summary on the screen which is a major benefit and attraction for the user.

How voice-ordering is transforming the online shopping experience?



Interpretation

Online shopping is transforming because of the growing use of voice based technology because it brings the best of virtual customer service and convenience on the same page thereby improving customer satisfaction. Voice Technology coupled with AI and similar technologies improves efficiency and customer shopping experience. Respondents believe that voice ordering is transforming the online shopping experience in various ways. Out of total respondents, 32.7% of them say that Voice Ordering enables smart shopping because it is effortless, automatic bidding and easy integration. 31.6% of respondents say that this technology offers personalized shopping experience to the users and as a result more

users are getting into Voice Ordering Shopping, day by day. 26.5% of them use Voice-Ordering because it is time efficient. Remaining respondents do voice ordering shopping because it is easy to review.

C) RELIABILITY ANALYSIS

Reliability for the Questionnaire was calculated through SPSS-25. The statistic came out as:

Chronbach's alpha value +0.720

Items: 13

D) CHI SQUARE TEST

Chi Square test has been used to find the different association between different demographic variables and subjective variables.

Sr. no	Hypothesis	Chi Square value	P-value	Phi value	Cramer V	Strength	Hypothesis Accepted/ Rejected
1.	H ₁ : There is significant association between age and desired offering of voice recognition software	22.024	0.001	0.469	0.332	Moderate	Accepted
2.	H ₂ : There is significant association between location specific tech savvy younger market and retailer connect using Voice Recognition Technology.	23.579	0.001	0.486	0.343	Moderate	Accepted
3.	H ₃ : There is an association between annual income and adoption of voice based devices and application	19.453	0.022	0.441	0.225	Moderate	Accepted

4.	H4: There is a significant association between location and retail customer experience using voice-based technology.	15.407	0.017	0.393	0.278	Weak	Accepted
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H1: Age of the respondents is found to be associated with abilities to do voice search (p-value 0.001). Further it was found that there is a moderate association between these two variables (0.469). Majority of the respondents who responded are from age group of 18 – 30. According to them the voice recognition software provides the ability of personalized responses. 30 – 45 age group respondents prefer using **pay by voice ability of the software**. According to respondents of 45 & above age group, they prefer the ability of voice push notification of the software.

H2: Location of the respondents is found to be associated with retailers to connect with tech-savvy younger market (p-value 0.001). It was found that there is a moderate association between these two variables (0.486). The majority respondents from all the regions strongly agreed that voice-activated technology is the best way for retailers to connect with the tech-savvy younger market.

H3: Annual Income of the respondents is found to be associated with the perceived benefits of voice based mobile apps (p-value 0.022). Further it was found that there is a moderate association between these two variables (0.441). The respondents of annual income group of below 1 Lakh say that voice based mobile apps are easy and faster. According to the respondents of income group of 3-5 Lakh, the benefit of security is very important. On the other hand, high class people of 5 Lakh and above income level, precisely working of the voice based mobile apps is a major benefit

H4: Location of the respondents is found to be associated with retailer customer experience (p-value 0.017). Furthermore it was found that there is a weak association between these two variables (0.393). The major respondents belonging to all the regions believe the same that

the voice technology will soon play an integral role in the retail customer experience

LIMITATION AND FUTURE SCOPE OF STUDY

The device and level of Voice Technology usage differs across respondents and that may alter results. Further the data was collected from Mumbai and near by places during the pandemic when online shopping was at its peak. This study mainly reviewed shopping using voice technology and did not consider many other usages. Mumbaikars are well versed with IT and IT enabled technologies but the scenario is not same across the country. So, we cannot generalise the output to other parts of India as well.

Future scope of study: The researchers propose extending the study to other parts of India. Besides, this research must involve retailers' point of view as well.

CONCLUSION

Even though voice recognition is a major untapped opportunity for many small-scale retailers, in the overall research study of voice recognition technology, it can be concluded that it is the best way for retailers to connect with the tech-savvy younger market. Voice Recognition Technology is becoming common in today's life and has a wide scope for Retailers as well as customers in future. It is not only an enabler but also future of E-commerce. The various benefits of voice based mobile apps have grabbed the attention of customers and attracting them to use technology. This will also enhance the retail customer experience. Voice ordering is already transforming the Online Shopping experience of customers enabling them smart and personalized shopping experience.

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