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Research Paper

Digital Assistants: A Study of Customer Preference with AI applications

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Abstract
Siri, Alexa, and other digital assistants are rapidly becoming embraced by consumers and are projected to grow from 390 million to 1.8 billion for the period of 2015 to 2021. While offering benefits to consumers, digital assistants are proving to be a disruptive technology for businesses as well. Coupling digital assistants with other artificial intelligence technologies offers the potential to transform companies by creating more efficient business processes, automating complex tasks, and improving the customer service experience. Businesses have begun integrating this technology into their operations with the expectation of achieving significant productivity gains. Yet, there is little empirical evidence of customer satisfaction with digital assistants. This study used to analyze 122 survey responses obtained from a cross section of consumers. Using the Expectations Confirmation Theory as its foundation, the study results identified that this model substantially explained customer satisfaction with digital assistants. Using analysis of the relative importance of model constructs, the study provides guidance which allows firms to prioritize marketing and managerial activities. These priorities identify areas of high importance for customer satisfaction, but which require performance improvements.

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I. Introduction

Artificial intelligence (AI) technologies are emerging as disruptive change agents, challenging many established marketing strategies and processes. Businesses must now quickly understand and respond to the changes in attitudes facilitated by customer exposure to AI technologies. In doing so, companies need to evaluate the experience at each point of customer interaction, as well as their overall marketing engagement model. As such, context-specific recognition must be given to the cognitive, emotional, and behavioral components of the engagement. One study relays that "firms already acknowledge the importance of understanding and managing customer experience and engagement levels". Accordingly, firms must transform their customer preference and behavioral information into actionable knowledge. Knowledge is a fundamental source of competitive advantage. Firms that meet this challenge are afforded significant opportunities for competitive advantage and growth.

AI is a multi-disciplinary field of research and concepts that covers a wide variety of content, technologies, and different applications involving cognitive science, robotics, and natural interfaces (Borana, 2016). Even though there are multiple taxonomies of AI, there is no all-inclusive, universally accepted definition (The Office of Science and Technology Policy, 2016, October). However, AI is making advancements towards "embracing the scientific goal of constructing an information-processing theory of intelligence" (Nilsson, 2014, p. 2). Consistent with that goal, this study adopts a recent definition of AI as being a collection of technologies which sense, learn, and act (Stone et al., 2016). While the AI approach to these outcomes may not mirror those of human beings, such outcomes are intended 23 to mimic and possibly out-perform human beings (Borana, 2016). This study will focus on specific AI applications involving machine learning, natural language processing, and digital assistants.

Digital assistants are speech-enabled integrated AI technologies (generally referenced as conversation-enabled applications) resident within various mobile platforms. They are viewed as dynamic systems possessing

the ability to learn customer preferences (V. Kumar et al., 2016). These systems "use inputs such as the user's voice, vision (images), and contextual information to provide assistance to users by answering a question in natural language, making recommendations, and performing actions" (Hauswald et al., 2015, p. 223). The captured information is compressed and streamed to cloud-based data centers where speech recognition and semantic extraction programs associated with NLP convert the content into machine-readable text (Brown, 2016). Subsequently, this text is incorporated into other integrated AI applications that perform reasoning, predictive intelligence, and machine learning activities. These activities are designed to understand the question and return a personalized response to the user through the digital assistant

Statement of the Problem

Artificial Intelligence personal assistants have become plentiful over the last few years. Applications such as Siri, Alexa and Cortana make mobile device users' daily routines that much easier. You may be asking yourself how these functions. Well, the assistants receive external data (such as movement, voice, light, GPS readings, visually defined markers, etc.) via the hardware's sensors for further processing - and take it from there to function accordingly. And also this digital assistant has some negative sides that can be used by most of the people but sometimes it can miscalculate our inputs and give a irrelevant answers so this makes the user dissatisfy then also this digital assistant can goes wrong assumption of the users command and this also can get our personal data for the function so here also some danger that this digital assistant can misuses our data. So this are the some problem can be happen in the digital assistant.

Objectives

- To identify the demographics of digital assistant users.
- To identify the basic knowledge of digital assistants from the users
- To analyze how the user adopt the digital assistant
- To analyze how the user have the trust in digital assistant

Scope of the study

The scope of the study confined to Digital assistants. The aim of the study is to analyze the factors provide by the Digital assistants among the customers with special reference to virtual personal assistant in current world. This research focuses on understanding the perception of customers towards wellness benefits provided by the concern. The sample size of this study is 122. The study will help the organization to know the satisfaction level of the customers regarding the services offered by the Digital assistants.

Limitations of the study

- Due to the time constraints, only specific sample size from this entire survey has been considered for the study.
- Some of the users of digital assistants may feel afraid to share the personal facts.
- Some of the respondents have not much more knowledge about the digital assistants.
- Whatever the data had been gathered is based on suggestive study but not exhaustive study.

II. RESEARCH METHODOLOGY

Research methodology is the specific procedures or techniques used to identify, select, process, and analyze information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The methodology section answers two main questions: How was the data collected or generated? How was it analyzed?

RESEARCH DESIGN

Research design is a conceptual structure within which research should be conducted. Thus the preparation of such a design facilitates research to be as efficient as possible and will yield max information.

Type of Research

Here in order to meet the research objectives, descriptive research design is used.

Descriptive Research

Design Descriptive research design includes surveys and fact findings, enquires of different kinds. The major purpose of Descriptive research is description of state of affairs, as it exists at present. In social business research we quiet often use the term Ex post facto research for descriptive studies.

The main characteristic of this method is that the researcher has no control over the variable; he can only report what has happened or what is happening. Most Ex post facto research projects are used for descriptive studies in which the researcher seeks to measure such items,for example, frequency of shopping, and consumer preferences on products or services.Descriptive Research method will be applicable to the existing problem.

Information required

- Demographic profiles of the respondents
- On which brand the respondents are interested in and the reason why they are stick on to the particular brand. Whether they will switch over to other brands.

Research Plan

Data source : Primary
Research Approach : Survey method
Research Instrument : Questionnaire
Contact method :E-mails, Social media

DATA COLLECTION

The task of collecting data begins after a research problem has been defined and plan is chalked out. This study pertains to collection of data from primary and secondary sources.

Primary Data

These are the data which are collected from some primary sources i.e., a source of origin where the data generate. These are collected for the first time by an investigator or an agency for any statistical analysis. Data are collected for the first time for a specific purpose in mind using the questionnaire method. Questionnaire through personal contact and e-mails. An advantage of using primary data is that researchers are collecting information for the specific purposes of their study. In essence, the questions the researchers ask are tailored to elicit the data that will help them with their study. Researchers collect the data themselves, using surveys.

SAMPLING METHOD

Sampling Design A sample plan is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample.

After deciding the research approach and instrument the next stage is to design a sampling plan. The selected respondents from the total population constitute what is technically called a "sample" and the selection process is called "Sampling technique". The sampling plan calls for the following decisions such as :-

1. Population
2. Sampling Frame
3. Sampling Unit
4. Sampling method
5. Sample Size

Population

The first step in the sampling process is the definition of the population, which can be defined in terms of elements, sampling units, extend and time. For the present study undertaken the population was total users in digital assistants.

Sampling Frame

A sample frame is a means of representing the elements of the population. The sample frame made use of in this study is users database lists.

Sampling Unit

The sampling unit of the study is collected from the users those who are using the digital assistants.

Sampling Method

Simple Random Sampling is used in this study.

Sample size

The Sample size selected for the survey is 122. The sample size determination was purely by intuition.

Findings of the study

Percentage Analysis

- 38.5 of the respondents are in the age group of 21-22.
- 65.6 of the respondents are Male.
- 41.0 of the respondents are Post Graduate.
- 67.2 of the respondents are others in occupation.
- 68.0 of the respondents are Single.
- 45.1 of the respondents monthly income was less than 15000.
- 66.4 of people are using the digital assistant in today's world.
- 54.1 of people can use digital assistant to manage the home in today's world.
- 50.0 of people speak with digital assistant by Medium
- 30.3% of people give rating 5 with digital assistant
- 38.5 of the respondents said agree with expect brands to have their own digital assistants.
- 40.2 of the respondents said agree with interest to voice search through a smart home speaker.
- 31.1 of the respondents said agree with interest to give a command by voice through the TV or Smart home devices.

- 36.9 of the respondents said agree with interest to give a commands by voice to the vehicle.
- 34.4 of the respondents said agree with digital assistant to searching for a business.
- 43.4 of the respondents said agree with digital assistant to asking for directions.
- 39.3 of the respondents said agree with digital assistant to searching for a quick fact.
- 33.6 of the respondents said agree with digital assistant to accessing credit card accounts.
- 33.6 of the respondents said strongly agree with searching for something online through digital assistant.
- 43.4 of the respondents said agree with speaking to a human through digital assistant.
- 30.3 of the respondents said agree with texting on a phone through digital assistant.
- 38.5 of the respondents said strongly agree with personal information or data is not secure with digital assistant.
- 43.4 of the respondents said agree with how the personal information is being used with digital assistant.
- 37.7 of the respondents said agree with don't want their personal information or data used with digital assistant.
- 34.4 of the respondents said agree with digital assistant actively listening and recording the personal things.
- 41.8 of the respondents said agree with information gathers is not private by digital assistant.
- 40.2 of the respondents said agree with don't trust the companies behind the digital assistant.
- 38.5 of the respondents said strongly agree with Digital assistant find products based on images or photos.
- 49.2 of the respondents said agree with Digital assistant Scan bar codes and provide people with additional information including price and purchase information.
- 40.2 of the respondents said agree with Digital assistant provide accurate and personalized recommendations.
- 35.2 of the respondents said agree with Digital assistant understandpeople purchase preferences and make routine purchases on my behalf.
- 34.4 of the respondents said agree with Digital assistant provide me with real-time and relevant information based on my personal interests.

Chi-Square

There is a significant relationship between gender of the respondents and voice assistant people use most often.

Correlation

There is no significant relationship between people rating with the digital assistant and some reasons people claimed to be unsatisfied with digital assistants.

Manova

There is a significance relationship between people can use the digital assistant to manage home and How people using their digital assistant for home management [Security system/cameras]

There is a significance relationship between people can use the digital assistant to manage home and How people using their digital assistant for home management [Automated door locks]

There is a significance relationship between people can use the digital assistant to manage home and How people using their digital assistant for home management [Package delivery]

There is a significance relationship between people can use the digital assistant to manage home and How people using their digital assistant for home management [Lighting]

There is a significance relationship between people can use the digital assistant to manage home and How people using their digital assistant for home management [Music]

There is a significance relationship between people can use the digital assistant to manage home and How people using their digital assistant for home management [Thermostat]

Suggestion

- In the Digital assistant the voice search should be improved for the users and make a better experience.
- In the Digital assistant there have a lot of bugs and glitches so that all can be fixed by the respective agent.
- Now a days this digital assistant has a basic features so they can implement a lot of new and exciting features in upcoming updates.
- In the digital assistant can works with some wireless devices so it can emits a radiation and that can be consider as a customer safety measures.
- People feels that personal information or data is not secure with digital assistant so the respective agent can give some privacy concerns for the users.

- People feels digital assistant actively listening and recording the personal things so the respective agent can fix the problem for the users.
- In upcoming updates people expecting lot of new and privacy features are implement in the digital assistant by the respective agent.

III. Conclusion

Customer satisfaction has long been a focal point of extant marketing and information technology literature. This study advances our understanding of the theoretical foundations for customer satisfaction as related to a new AI technology platform involving digital assistants. Given the relative infancy of current digital assistant adoption and utilization, there is limited empirical work directly related to the consumer experience and customer satisfaction. This study affirmed the role of the expectations confirmation process in the customer satisfaction evaluation. Further, it provides insights that allow managers to understand the drivers and the degree of customer satisfaction with digital assistants. It also underscores the importance of establishing strong user perceptions of trust while also addressing user concerns about information privacy. These elements can influence customer satisfaction evaluations.

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