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CONSUMER AWARENESS AND ADOPTION OF OPEN NETWORK FOR DIGITAL COMMERCE (ONDC)

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ABSTRACT

The rapid expansion of e-commerce in India has brought significant changes to the retail sector, with major platforms like Amazon and Flipkart dominating the market. However, this platform-centric model has created barriers for small and medium businesses, restricting their participation due to high listing fees, commission rates, and limited access to consumers. In response, the Government of India launched the Open Network for Digital Commerce (ONDC), a decentralized and open-source framework that aims to democratize e-commerce. ONDC allows buyers and sellers to interact across platforms, creating a level playing field for businesses of all sizes.

This project explores the awareness, perceptions, and adoption potential of ONDC among consumers in Coimbatore, a prominent commercial hub in South India. The study seeks to assess the readiness of consumers to transition from traditional e-commerce platforms to an open network. It also identifies the key barriers and motivations influencing consumer behavior, such as awareness levels, trust, ease of use, and the perceived benefits of using ONDC.

The research employs a mixed-method approach, combining quantitative surveys and qualitative discussions. Statistical tools such as correlation and regression analysis were used to analyze relationships between demographic factors and awareness levels. The study also examines the role of consumer attitudes toward decentralized commerce models, contrasting them with the trust and convenience associated with established platforms.

Findings indicate that awareness of ONDC remains low among respondents, particularly among

older consumers and those in rural areas. Younger, tech-savvy individuals and frequent online shoppers are more likely to recognize the benefits of ONDC. Barriers such as limited knowledge, concerns about security, and lack of user-friendly interfaces were highlighted as key challenges. On the other hand, the study reveals significant interest in ONDC's promise of transparency, lower costs, and support for local businesses, suggesting a strong potential for adoption if these issues are addressed.

This study contributes to the growing body of research on decentralized commerce and consumer behavior, offering valuable perspectives for the successful implementation of ONDC in India. It underscores the need for inclusive digital transformation strategies that prioritize both consumer and seller engagement. As ONDC evolves, its potential to disrupt the current e-commerce ecosystem and foster equitable growth across India's diverse markets is significant, making it a key driver for the nation's digital economy.

CHAPTER I INTRODUCTION

1.1 ABOUT THE INDUSTRY

India's e-commerce industry is one of the fastest-growing markets globally, driven by rapid digital adoption, increasing internet penetration, and a growing middle class. The sector, valued at around \$85 billion in 2021, is expected to surpass \$200 billion by 2026. Major players like Amazon, Flipkart, and Reliance's JioMart dominate the landscape, operating on centralized platforms that offer convenience, competitive pricing, and robust supply chain systems. However, this dominance raises concerns about monopolistic practices, limited participation of small sellers, and high commission rates.

The rise of government-backed initiatives like the Open Network for Digital Commerce (ONDC) aims to address these issues. ONDC promotes a decentralized approach, democratizing digital trade by allowing sellers and buyers to transact without being confined to a single platform. This innovation is crucial in bridging the gap for micro, small, and medium enterprises (MSMEs), enabling them to compete fairly with established players.

Key drivers of growth in the industry include increasing smartphone usage, favorable government policies such as "Digital India," and growing consumer preference for online shopping post-pandemic. Challenges like data security, payment fraud, and logistical inefficiencies persist. However, with technological advancements and policy support, the e-commerce industry remains a cornerstone of India's digital economy.

GROWTH AND EVOLUTION OF E-COMMERCE IN INDIA

The growth of e-commerce in India began in the early 2000s, with the entry of platforms like Flipkart, Snapdeal, and later Amazon India. These companies brought the convenience of online shopping to Indian consumers, who previously relied heavily on brick-and-mortar stores. Several factors have contributed to the exponential growth of e-commerce in India:

- 1. Digital Revolution:** The widespread adoption of smartphones and affordable data plans, particularly after the entry of Reliance Jio, has significantly increased internet usage in rural and urban areas alike.
- 2. Growing Middle Class:** An expanding middle class with higher disposable income has fueled demand for a variety of goods and services online.
- 3. Diverse Product Offerings:** E-commerce platforms offer everything from groceries and electronics to fashion and healthcare, catering to a broad consumer base.
- 4. COVID-19 Impact:** The pandemic accelerated digital adoption, with many consumers switching to online platforms for safety and convenience.

KEY SEGMENTS OF E-COMMERCE

The e-commerce landscape in India comprises several key segments, each contributing significantly to its overall growth:

- 1. Business-to-Consumer (B2C):** Dominated by platforms like Amazon and Flipkart, this segment caters directly to consumers, offering products ranging from apparel to electronics.
- 2. Business-to-Business (B2B):** Platforms like IndiaMART and Udaan facilitate transactions between businesses, enabling wholesale trade and supplier partnerships.
- 3. Consumer-to-Consumer (C2C):** Platforms such as OLX and Quikr allow individuals to buy and sell goods directly to each other.
- 4. Food Delivery and Services:** Companies like Zomato and Swiggy represent this fast-growing sector, delivering meals and groceries to consumers' doorsteps.
- 5. Online Travel:** Players like MakeMyTrip and Yatra provide services ranging from flight and hotel bookings to tour packages.

KEY PLAYERS IN THE INDUSTRY

- 1. Amazon India:** A global giant, Amazon entered the Indian market in 2013 and quickly became one of the leading e-commerce platforms. Its extensive product range, fast delivery services, and innovative Prime membership have contributed to its success.
- 2. Flipkart:** Founded in 2007 and acquired by Walmart in 2018, Flipkart remains a dominant player, especially in Tier-2 and Tier-3 cities.
- 3. Reliance JioMart:** Leveraging its extensive offline retail network and digital ecosystem, JioMart is rapidly scaling its e-commerce operations.
- 4. Myntra:** Specializing in fashion and lifestyle, Myntra has carved a niche in the apparel and accessories market.
- 5. BigBasket and Grofers:** These grocery delivery platforms cater to daily essentials, becoming household names in urban India.

TECHNOLOGICAL ADVANCEMENTS

Technology is the backbone of e-commerce, enabling seamless transactions and personalized experiences. Key technological drivers include:

- 1. Artificial Intelligence and Machine Learning:** Platforms use AI to analyze consumer behavior, offer recommendations, and enhance customer engagement.
- 2. Payment Gateways and UPI:** Secure digital payment solutions like UPI and wallets (Paytm, PhonePe) have simplified transactions and boosted consumer trust.
- 3. Data Analytics:** Real-time data tracking helps businesses optimize inventory, logistics, and customer satisfaction.
- 4. Blockchain:** Although in nascent stages, blockchain promises to enhance transparency and security in supply chains.

CHALLENGES IN THE E-COMMERCE INDUSTRY

Despite its rapid growth, the e-commerce industry in India faces several challenges:

- 1. Logistics and Infrastructure:** Delivering goods to rural and remote areas remains a significant hurdle due to inadequate logistics networks.
- 2. Competition:** Intense competition among established players and emerging startups has resulted in aggressive pricing and high customer acquisition costs.
- 3. Data Privacy and Security:** Rising concerns over the misuse of consumer data and cybersecurity breaches could hinder trust.
- 4. Digital Literacy:** While urban India embraces e-commerce, rural areas lag behind due to low digital literacy and awareness.
- 5. Regulatory Issues:** Frequent changes in government regulations, particularly concerning foreign direct investment (FDI), pose challenges for foreign players like Amazon.

OPPORTUNITIES FOR GROWTH

The future of e-commerce in India is ripe with opportunities:

- 1. Rural Market Penetration:** With nearly 65% of India's population residing in rural areas, expanding digital infrastructure can unlock significant potential.
- 2. Personalized Shopping Experiences:** Leveraging AI to provide hyper-personalized shopping experiences will drive customer loyalty.
- 3. Sustainability:** E-commerce companies are increasingly focusing on eco-friendly packaging and sustainable practices to attract environmentally conscious consumers.
- 4. Voice and Vernacular Support:** Integrating regional languages and voice commands can enhance accessibility for non-English speaking users.
- 5. Decentralized Commerce:** Initiatives like the Open Network for Digital Commerce (ONDC) aim to create an inclusive e-commerce ecosystem by reducing platform dependency.

GOVERNMENT SUPPORT AND POLICIES

The Indian government has played a crucial role in fostering the e-commerce sector. Initiatives like **Digital India**, which aims to transform the country into a digitally empowered society, and the **Startup India** campaign, which promotes entrepreneurship, have created a conducive environment for growth. Policies encouraging cashless transactions and increasing FDI limits for e-commerce have further bolstered the industry.

The **Open Network for Digital Commerce (ONDC)** is one such groundbreaking initiative aimed at democratizing digital commerce. By enabling interoperability between platforms, ONDC seeks to empower small and medium businesses, ensuring fair competition and reducing the dominance of large players.

CONSUMER TRENDS

- 1. Mobile Commerce (m-Commerce):** Mobile devices account for over 80% of e-commerce transactions, highlighting the need for mobile-optimized platforms.
- 2. Social Commerce:** Platforms like Instagram and Facebook are increasingly becoming shopping destinations, especially among younger audiences.
- 3. Subscription Models:** Services like Amazon Prime and Flipkart Plus are gaining popularity for their value-added benefits.
- 4. Cross-Border Shopping:** Consumers are exploring international e-commerce platforms for unique and high-quality products.

THE ROLE OF COVID-19

The COVID-19 pandemic was a turning point for e-commerce in India. Lockdowns and social distancing norms forced consumers to rely on online platforms for essentials, leading to a surge in demand. Categories like groceries, health products, and work-from-home equipment saw unprecedented growth. Even post-pandemic, many consumers continue to prefer online shopping due to its convenience.

The future of India's e-commerce industry is poised for continued growth, with an expected compound annual growth rate (CAGR) of over 18%. Innovations in technology, coupled with strategic government initiatives, will play a key role in shaping the industry's trajectory. Decentralized models like ONDC have the potential to disrupt existing norms, fostering inclusivity and innovation.

In conclusion, India's e-commerce industry stands at the cusp of a digital revolution. By addressing existing challenges and leveraging opportunities, the sector can continue to thrive, driving economic growth and improving consumer experiences across the country.

1.2 ABOUT THE COMPANY

ONDC or Open Network for Digital Commerce is a completely new way of doing digital commerce where all buyers and sellers can be on different apps or platforms but still be able to transact with each other. Much like mobile users can have a SIM card of any phone company but be able to call each other. As a seller you can be found by all the buyers without having to list in multiple places. Even if you are a small seller or micro enterprise, you have the same opportunity to grow your revenue at an affordable cost as a large organization. ONDC is an initiative launched by the Government of India under the Ministry of Commerce and Industry to promote open networks for all aspects of digital commerce. The purpose of ONDC is to democratize digital commerce and move it away from platform-centric models controlled by major companies.

Decentralized Network Architecture : ONDC is building an open-source network based on open protocol specifications, providing a decentralized infrastructure for e-commerce instead of centralized platforms.

Interoperability : The open protocols will enable buyers and sellers to transact with each other even using different apps/platforms as long as they are integrated with ONDC. This interoperability aims to foster more innovation.

Open Participation : ONDC allows all types of buyers, sellers ranging from small retailers to enterprises to plug into the network and be discoverable to wider audiences in a transparent fashion.

Ownership and Control : Participants on ONDC will have more ownership over their data and interactions compared to platform-dependent models. This can enable better customization of services. ONDC is currently rolling out across India in phases by onboarding traders, logistics providers and setting standards for integration. As it matures, ONDC has the potential to reshape digital trade equitability and reduce concentration. However, achieving scale will depend on sufficient consumer awareness and willingness to adopt open decentralized alternatives amid existing platform loyalty.

STEPS TO SELL PRODUCTS THROUGH ONDC NETWORK

STEP 1

Register yourself and onboard onto a seller application that is ONDC Protocol Compliant.

STEP 2

Provide your KYC documents to complete registration.

Documents required are

- PAN Card
- Aadhar Card (For Delhi only)
- GST Certificate
- Cancelled cheque for account details
- FSSAI (Mandatory for F&B packaged items)

STEP 3

After registration, the seller network participant will create a digital catalogue of all your products. You will also get access to a seller application, where you can easily manage and track online orders, payments and update your inventory.

1.3 ABOUT THE PROJECT

The Open Network for Digital Commerce (ONDC) is a government-backed initiative aimed at promoting open networks for all aspects of the exchange of goods and services over digital platforms. Digital commerce and online transactions have been accelerating rapidly across India,

but most e-commerce still takes place on centralized proprietary networks like Amazon, Flipkart etc. Emerging open network alternatives can facilitate more accessible digital trade. Open networks are based on decentralized distributed ledger systems which provide increased transparency, neutrality, flexibility and commission savings compared to existing intermediaries. As consumer awareness is essential for adopting open networks, this study aims to analyze recognition, perceptions and adoption considerations towards these models in Coimbatore.

Coimbatore has an expanding technology-savvy middle class and increasing internet access, making it a relevant region for alternative digital business models to take root if sufficient customer awareness exists. Currently, limited research has evaluated whether consumers who actively participate in e-commerce are cognizant of the open network potential, its unique value proposition and feasibility challenges. Bridging this knowledge gap is vital. Enhanced consumer orientation can substantially accelerate ecosystem readiness for participatory decentralized commerce.

The overarching focus guiding this research is - Assessing Customer Recognition, Beliefs and Preparedness for Transacting on Open Network Infrastructures Among Digital Consumers in Coimbatore District. Sub-objectives include benchmarking relative understanding compared to centralized incumbents, gauging customer attitudes regarding relative merits, and identifying adoption barriers whether real or perceptual among the target demographic. The analysis framework and methodology will be elaborated subsequently. Insights from this study can inform constructive strategies by awareness promoters and governance agencies to unlock opportunities for inclusive innovation, thereby boosting regional progress.

CHAPTER II

REVIEW OF LITERATURE

1. (George, 2022) “COVID-19 HAS BOOSTED WORLDWIDE DIGITAL TRADE”.

Digital commerce surged in retail but fell in mobility and travel services. Sales increased due to B2C sales. The ONDC project prevents digital monopolies. ONDC intends to provide a platform for all online stores by open-sourcing e-commerce procedures. This article covers ONDC's core beliefs. The author investigates Open Network for Digital Commerce's origins and main ideas. Prospects and difficulties. To assess ONDC's impact on India's digital monopolies. Businesses seek inventive ways to engage with customers. ONDC, a new network, wants to simplify this. The platform intends to attract new customers, break online monopolies, and let micro, small, and medium-sized firms join online markets.

2. Batra, S., & Arora, A. (2020) Adoption of e-commerce in MSME sector research scholar silky bhatra. This paper proposed the importance of e-commerce and the adoption of technology in MSME and how it affects the organisation's culture, social influence, and technical competency in the landscape of a business organisation. It also analysed that organizational culture is a very crucial factor for the adoption of e-commerce through the chi-square test and type of business occupation, education and so on are the factors which do not influence the adoption of e-commerce. The author explains the model of TAM (Technology acceptance model that creates the basis for the establishment of electronic ECommerce in the MSME sector to enhance productivity.

3. Mohan, V., & Ali, S. (2019) Challenges faced by Indian MSME in the adoption of the internet market and e-commerce. The primary information collected by the author through a survey regarding different challenges faced by MSME is in India over the adoption of online marketing and e-commerce. These qualitative responses from the various firms of MSMEs provide a piece of information about the difficulties and challenges faced by the 12 MSMEs while adopting online marketing and e-commerce for their business. This article also suggests the MSME owners and policymakers of the organisation work together and identify, and assess the major challenges faced by MSMEs in the adoption of ecommerce. It also recommends the owners of MSME to invest adequately in skill development so that they can easily attain commercialization marketing activities through digital channels.

4. (Sørebo, 2018), One of the major concerns for “**ONLINE SHOPPING IS PRIVACY AND**

SECURITY ESPECIALLY FOR ONLINE SHOPPERS” when they are required to provide personal and financial information. And also perceived risk was found to be a significant predictor of transaction abandonment by a customer (Rajamma et al., 2009; El Haddad et al., 2018). The consumers are always suspicious that companies might misuse their information or that their confidential details like credit card information may be stolen due to insufficient site security. Infact, these concerns were found to surpass concerns over products and services quality and price advantage when considered together (Mousavizadeh et al., 2016). However, Mousavizadeh et al. (2016) also showed that assurance statements (statements of policy and procedure relating to privacy and security issued by the vendor) and third party assurance seals (awarded for good business practice by independent bodies) were found to significantly allay many of these consumer fears, as indicated by an increase in purchase intention (see also Özkan et al., 2010).

5. **Anuj, K., Fayaz, F., & Kapoor, N. (2018)** Impact of e-commerce on the Indian economy Kumar Anuj, Fahad Fayaz, Namitha Kapoor Truda's analysis and findings of this paper reveal the importance of the e-commerce industry and the growth of digital penetration in India. It also focuses on various initial initiatives undertaken by the government of India to create awareness among rural people about the cashless economy and the role of the Internet in India in the modern era and enhance the growth and development of ecommerce that will aid to attend the economic growth of the country.

6. **Khosla, M., & Kumar, H. (2017)** Growth of e-commerce in India: an analytical review of literature Madhurimakolsa Harish Kumar: The evolution of e-commerce and it mainly focused on the growth of b2c e-commerce through the awareness of consumers trust of 13 investors and technology of the country full stop it also he Wills that the online business practices are much better than the offline business practices that will enhance the stable existence in the market. Therefore sustainable business practices will encourage ECommerce and m-commerce in their business rather than a traditional business.

7. **(Pandey, Soodan 2014)**, The researcher discovers that an “**ONDC GOVERNMENT INITIATIVE PROMOTES OPEN NETWORKS FOR DIGITAL GOODS AND SERVICE COMMERCE**”. Users may shop at any business without switching ecommerce sites. Internet companies should have equal visibility and growth opportunities. The ONDC allows market creation that will impact the economy. This platform prioritizes law enforcement. Expect some network expansion issues. The study says the growth of online shopping in India is exploding. E-commerce is driven by factors such as demography, economic levels, and lifestyles. The research investigates a variety of topics, including how innovative minds are coming up with fresh concepts to keep customers interested.

8. **(Rajput, Kesharwani, 2014)** The ONDC program, led by the Ministry of Commerce and Industry's **“DEPARTMENT FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE (DPIIT)”**, aims to make digital or e-commerce more democratic by shifting from a platform-centric paradigm to an open network model (ON). Digital commerce will change platform-centric Indian e-commerce (DC). ONDC won't require transaction-level data. An open network may expose even a tiny retailer to several platforms. The ONDC intends to dismantle digital monopolies and generate new opportunities. This might transform e-commerce, especially in India. Online startups will be millions. Revolution if the government's approach works. Indian e-commerce might reach \$200 billion by 2020. The administration must plan to overcome various challenges. Amitabh Agrawal thinks small-to-medium-sized players will succeed.

9. **Bibhu Dash, Pawan Kumar Sharma, Meraj F Ansari, and Swati Swayamsidha (2014)** "A Review of ONDC's Digital Warfare in India Taking on the E-Commerce Giants," came to the conclusion that ONDC India can bridge the gap between large players and small retailers in the e-commerce sectors through a distinctive design. It is actually 14 developing a value chain-based e-commerce network with growth potential for all small, medium enterprises. We will have a better grasp of how things will function in the short and long term once the ONDC network is ready for full phase implementation. It is still under construction and undergoing several unique and novel improvements.

10. **Dr.A.Shaji George. A.S. Hovan George (2013)** **“Open Network for Digital Commerce (ONDC) : Democratizing Digital Commerce and curbing digital monopolies in India”** The variables used are Gross domestic product (GDP), the gross market value (GMV), the penetration rate, the number of buyers and sellers, the transaction data, and the data privacy and security policies, The author uses Beckn protocol, an open and interoperable protocol for decentralized digital commerce, and the ONDC gateway as a tool that ONDC aims to create a platform for digital commerce that is open, interoperable, and inclusive for all businesses and consumers, and to curb the digital monopolies of large e-commerce platforms. ONDC is based on the open network concept, which allows buyers and sellers to do business regardless of the platform or application they use, and to share their data and reputation across the network ONDC is expected to have a significant impact on the economy, employment, livelihoods, and supply chain efficiencies, as

well as to increase the adoption and penetration of digital commerce in India.

11. Bibhu Dash, Pawankumar Sharma, Meraj F. Ansari Swati Swayamsiddha (2013). “A Review of ONDC's Digital Warfare in India Taking on the e - Commerce Giants”, The variables used are Gross domestic product (GDP), The gross market value (GMV), The penetration rate, The number of buyers and sellers, The transaction data, and The data privacy and security policies, The author uses Beckn protocol, an open and interoperable protocol for decentralized digital commerce, and the ONDC gateway as a tool ONDC aims to create a platform for digital commerce, pen network concept, significant impact on the economy, employment, livelihoods, and supply chain efficiencies.

12. Saman Rizvi, Dr. Archana Singh (2013) “A Study on the potential of open network for digital commerce to fuel India’s retail revolution” The variables used are Gross domestic product (GDP), The gross market value (GMV), The penetration rate, The 15 number of buyers and sellers, The transaction data, and The data privacy and security policies The author uses Beckn protocol, an open and interoperable protocol for decentralized digital commerce, and the ONDC gateway as a tool that ONDC is based on the open network concept, which allows buyers and sellers to do business regardless of the platform or application they use, and to share their data and reputation across the network. ONDC is expected to have a significant impact on the economy, employment, livelihoods, and supply chain efficiencies, as well as to increase the adoption and penetration of digital commerce in India.

13. Dimpy Kumari And Ani Sharma (2012) “A Study on Restoring the Indian E Commerce Ecosystem with an Open Network for Digital Commerce” The variables used are Gross domestic product (GDP), The gross market value (GMV), The penetration rate, The number of buyers and sellers, The transaction data, and The data privacy and security policies, The author uses ONDC gateway, an application that ensures search capabilities of all sellers in the network, and the

Beckn protocol as a tool ONDC aims to create a platform for digital commerce that is open, interoperable, and inclusive for all businesses and consumers, and to curb the digital monopolies of large e-commerce platforms. ONDC is based on the open network concept, which allows buyers and sellers to do business regardless of the platform or application they use, and to share their data and reputation across the network.

14. Dr. Anita Walia, Dr. Varalakshmi, Dr. Kiran Lokesh Maney (2012), “Predicting Consumer Acceptance of the Proposed Open Network for Digital Commerce” The variables used are Consumer acceptance, purchase intention, motivation factors, hindering factors, and demographic profile, The author uses ONDC gateway, an application that ensures search capabilities of all sellers in the network, and the Beckn protocol as a tool Security concern is the most influential hindering factor that affects the purchase intention on ONDC, followed by privacy concern and trust. These factors reflect the consumers' perceived risk and uncertainty in online transactions. Price and discovery time are the most important motivating factors that influence the purchase intention on ONDC, followed by perceived usefulness. These factors reflect the consumers' perceived benefits and convenience in online shopping. Demographic profile of the respondents shows that most of the 16 of them are young, educated, male, and frequent online shoppers, with an average annual spending of 10,001 to 20,000 rupees. This indicates that ONDC has a potential market among the urban and tech-savvy consumers.

15. Dr. Purushottam Arvind Petare (2011), “Insights on the open network for digital commerce (ONDC) : A Case study on a path breaking initiative of india” The variables are Democratization of e-commerce, the size and growth of the ecommerce market, the inclusion and participation of small businesses and consumers, the privacy and security of data, and the legal and regulatory issues, The author uses ONDC gateway, an application that ensures search capabilities of all sellers in the network, and the Beckn protocol as a tool ONDC aims to create a platform for digital commerce that is open, interoperable, and inclusive for all businesses and consumers, and to curb the digital monopolies of large ecommerce platforms. ONDC is based on the open network concept, which allows buyers and sellers to do business regardless of the platform or application they use, and to share their data and reputation across the network. ONDC is expected to have a significant impact on the economy, employment, livelihoods, and supply chain efficiencies, as well as to increase the adoption and penetration of digital commerce in India.

CHAPTER III

RESEARCH METHODOLOGY

3.1 OBJECTIVES OF THE STUDY

3.1.1 PRIMARY OBJECTIVE

To study the consumer awareness and adoption of Open Network for Digital Commerce (ONDC).

3.1.2 SECONDARY OBJECTIVES

1. To assess the level of consumer awareness about the Open Network for Digital Commerce (ONDC).
2. To identify the demographic profile of customers who use ONDC.
3. To examine the customer's experiences and their overall satisfaction with shopping on the ONDC platform.
4. To evaluate customer expectations and preferences concerning ONDC services.

3.2 SCOPE OF THE STUDY

The scope of this study covers the assessment of consumer awareness and adoption potential for ONDC in Coimbatore district, a region known for its industrial and commercial prominence. The study focuses on a diverse demographic, including age groups, gender, income brackets, and education levels. By surveying over 153 respondents, it incorporates both urban and rural perspectives on digital commerce. The research examines awareness levels of ONDC compared to traditional platforms like Amazon or Flipkart, evaluating consumer perceptions of usability, affordability, and ecosystem benefits. It also investigates challenges such as infrastructure gaps, trust issues, and resistance to change.

3.3 NEED FOR THE STUDY

The need for this study arises from the significant knowledge gap in understanding how decentralized e-commerce initiatives like ONDC can be adopted in Tier-2 cities like Coimbatore. While ONDC holds promise for equitable digital commerce, its success hinges on consumer participation. Coimbatore, with its burgeoning middle class and increasing internet penetration, is an ideal ground for testing consumer readiness for such innovations. The insights can guide policymakers, businesses, and technology developers to tailor strategies for promoting ONDC adoption. By highlighting barriers like low awareness or skepticism toward decentralized systems, this study can shape targeted awareness campaigns, policy adjustments, and business models.

3.4 RESEARCH METHODOLOGY

The study employs a snowball sampling methodology to investigate consumer awareness and adoption of ONDC. Initial respondents, identified through digital commerce networks and community connections across the North, South, East, and West zones of Coimbatore, are asked to refer to others within their social circles who are potential users of online shopping platforms.

This chain-referral technique enables access to a wider and more relevant target audience, particularly those less likely to be reached through conventional sampling methods. This approach helps capture diverse perspectives on awareness, adoption barriers, and motivators.

Statistical tools such as frequency distributions, ANOVA, and regression analysis are applied to analyze the collected data, providing comprehensive insights into the factors influencing ONDC adoption.

3.4.1 DATA COLLECTION METHOD

PRIMARY DATA COLLECTION

Quantitative Method

1. Structured survey questionnaire with close-ended questions
2. Questions to gather information on awareness, perceptions, demographics etc.
3. Sample target above 153 respondents across Coimbatore urban/rural areas.

Data Analytics Techniques

4. Frequency distributions, cross-tabulations to analyze survey results
5. Correlations, comparisons of means to uncover relationships
6. Qualitative content analysis of discussions by mapping themes and responses

3.4.2 RESEARCH DESIGN

A research design is a blueprint for fulfilling objectives and answering questions. It refers to the overall strategy that is used to integrate the different components of the study in a coherent and logical way, in order to effectively address the research problem. In this study, the research design is descriptive research. It gathers information from both qualitative and quantitative research to make accurate predictions about a specific problem or hypothesis; primary data have been used and analyzed using statistical techniques. A research design consists of the researcher's decisions about the procedures of sampling, data collection, and analysis of data in respect of a given study, which aims to fulfill the objectives or purpose of the study without wasteful expenditure of time, energy, and money.

Type: Mixed methods, combining quantitative and qualitative data collection to gain a comprehensive understanding of customer awareness levels and perspectives.

Sample Target Population: Residents of Coimbatore who use digital commerce platforms for shopping.

Sampling Strategy: Snowball sampling technique, where initial respondents refer to others within their social circles, ensuring broader coverage of potential respondents actively engaged in digital commerce.

Sample Size : Aim for a sample size of 153 participants to achieve generalizability of findings.

3.5 DATA COLLECTION

Quantitative Survey : Online based surveys distributed to a randomly selected sample to assess general awareness levels, attitudes towards open networks, and factors influencing awareness.

DATA ANALYSIS

Quantitative : Statistical analysis of survey data using SPSS software to identify statistical relationships between variables.

Timeline and Budget

Develop a realistic timeline for each stage of the research, including data collection, analysis, and writing.

SAMPLE DESIGN

Sampling is the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of characteristics found in the entire group. In this study, the sampling procedure is Snowball Sampling for primary data collection. A snowball sample is a non-probability sampling technique where existing study subjects recruit future subjects from among their acquaintances. This method is particularly useful for reaching populations that are difficult to access through conventional sampling methods.

Target Population: Adults aged above 18 who are current or potential digital commerce consumers across urban and rural areas of Coimbatore district.

Sampling Technique: Snowball sampling technique, where initial respondents refer to others within their social circles, ensuring broader coverage of potential respondents actively engaged in digital commerce.

3.6 TOOLS OF ANALYSIS

Objectives	Tools
To assess the level of customer awareness about the open network for digital commerce (ONDC)	Mean
To examine customer's experiences and their overall satisfaction with shopping on the ONDC platform	Correlation
To evaluate customer expectations and preferences concerning ONDC	Regression

DESCRIPTIVE STATISTICS

Frequencies : To understand the distribution of categorical variables like age, gender, location, and familiarity with open networks.

Measures of central tendency and dispersion : Mean to summarize quantitative data like shopping frequency and perceived benefits of open networks.

CORRELATION AND REGRESSION ANALYSIS

Pearson correlation coefficient : To measure the strength and direction of linear relationships between quantitative variables, like income and awareness level.

Linear regression : To predict a dependent variable (e.g., attitude towards open networks) based on one or more independent variables (e.g., age, shopping frequency).

ANOVA

Examines significant differences in mean values across multiple groups, such as the impact of age groups on satisfaction levels with ONDC.

CHI-SQUARE TEST

Statistical hypothesis testing: Tests for significant differences between observed and expected frequencies, such as the influence of education level on ONDC awareness.

3.7 LIMITATIONS OF THE STUDY

1. Geographic Limitation: The study is confined to Coimbatore district, which may not fully represent consumer behavior across other regions in India.
2. Sample Size: With a sample size of 153 respondents, the findings may have limited generalizability.
3. Awareness Levels: Respondents may have varying degrees of familiarity with digital commerce, potentially influencing the reliability of insights regarding ONDC.
4. Survey Design: The reliance on structured questionnaires may restrict the depth of qualitative data.
5. Temporal Scope: Consumer attitudes and awareness can evolve rapidly; hence, findings are time-bound and may not reflect future trends.
6. Technological Barriers: Limited digital literacy among some segments could affect responses.

CHAPTER IV

ANALYSIS AND INTERPRETATION

1. INTRODUCTION

Data analysis is the process of ordering, categorizing, manipulating, and summarizing data to obtain answers to research questions. It is usually the first step taken towards data interpretation. It is evident that the interpretation of data is very important, and as such needs to be done properly. Data interpretation is the process of reviewing data through some predefined processes which will help assign some meaning to the data and arrive at a relevant conclusion. It involves taking the result of data analysis. Therefore, researchers have identified some data interpretation methods to aid this process. In this chapter the analysis and interpretation of a study of consumer awareness and adoption of Open Network for Digital Commerce (ONDC) based on the information supplied by a sample of 153 respondents selected. This chapter contains different analysis namely:

1. Simple Percentage Analysis.
2. Descriptive statistics.
3. ANOVA.
4. Correlation.
5. Regression.
6. Chi - Square Analysis.

2. SIMPLE PERCENTAGE ANALYSIS

Percentage analysis is mainly used to determine the distribution of respondents coming under different categories. It is expressed in percentage mainly to facilitate standardization and comparison between two or more series of data. Percentages are used to describe the relationship

$$\text{Percentage} = \text{Number of respondents} / \text{Total number of respondents} \times 100$$

AGE OF THE RESPONDENTS

Age	Frequency	Percent	Valid Percent	Cumulative Percent
18 - 25	89	58.2	58.2	58.2
26 - 30	32	20.9	20.9	79.1
31 - 40	19	12.4	12.4	91.5
41 - 50	12	7.8	7.8	99.3
Above 50	1	.7	.7	100.0
Total	153	100.0	100.0	

TABLE 4.2.1 AGE OF THE RESPONDENTS**SOURCE:** Primary Data**INTERPRETATION:**

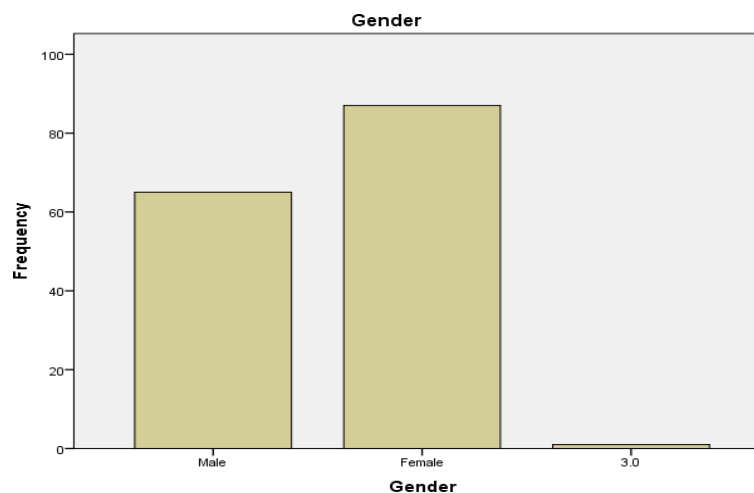
From the above table it is inferred that the majority of the respondents are between the age group of 18 - 25 years contributing 58.2%. The group between 26 - 30 years contributes 20.9%. The age group of 31 - 40 years contributes 12.4%. The age group of 41 - 50 years 7.8 % . The age group above 50 years contributes 0.7 %. Hence, the respondents between the age group 18 - 25 years contribute maximum.

INFERENCE:

Majority 58.2 % of the respondents were between the age group of 18 - 25 years.

GENDER OF THE RESPONDENTS

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	65	42.5	42.5	42.5
Female	87	56.9	56.9	99.3
Prefer not to say	1	.7	.7	100.0
Total	153	100.0	100.0	

TABLE 4.2.2 GENDER OF THE RESPONDENTS**CHART 4.2.1 GENDER OF THE RESPONDENTS****SOURCE:** Primary Data**INTERPRETATION:**

The above data represents a frequency distribution of gender for a sample size of 153 individuals, with 42.5% (65 individuals) identifying as male, 56.9% (87 individuals) identifying as female, and 0.7% (1 individual) falling into an unknown or unspecified gender category labeled as "3.0". The "Valid Percent" column shows the percentage distribution after excluding any missing or invalid data, where 42.5% of the valid responses were male, and 56.9% were female. The "Cumulative Percent" column represents the running total of the percentages,

indicating that 99.3% of the valid responses fall within the "Male" and "Female" categories combined, with the remaining 0.7% being the unknown or unspecified gender category, totaling 100% of the valid responses.

INFERENCE:

Majority 56.9 % of the respondents are Female

OCCUPATION OF THE RESPONDENTS

Occupation	Frequency	Percent	Valid Percent	Cumulative Percent
Student	64	41.8	41.8	41.8
Employee	52	34.0	34.0	75.8
Business	23	15.0	15.0	90.8
Homemaker	14	9.2	9.2	100.0
Total	153	100.0	100.0	

TABLE 4.2.3 OCCUPATION OF THE RESPONDENTS



CHART 4.2.2 OCCUPATION OF THE RESPONDENTS

SOURCE: Primary Data

INTERPRETATION:

The above data represents a frequency distribution of occupations for a sample size of 153 individuals, with 41.8% (64 individuals) being students, 34.0% (52 individuals) being employees, 15.0% (23 individuals) involved in business, and 9.2% (14 individuals) being homemakers. The "Valid Percent" column shows the percentage distribution after excluding any missing or invalid data, where 41.8% of the valid responses were students, 34.0% were employees, 15.0% were involved in business, and 9.2% were homemakers. The "Cumulative Percent" column represents the running total of the percentages, indicating that 75.8% of the valid responses fall within the "Student" and "Employee" categories combined, 90.8% within the "Student," "Employee," and "Business" categories combined, and 100% of the valid responses are accounted for across the four occupation categories.

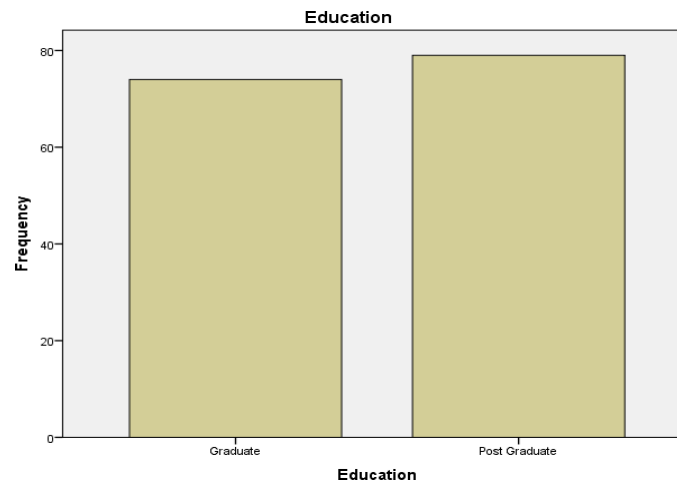
INFERENCE:

Majority 41.8 % of the respondents are students.

EDUCATION OF THE RESPONDENTS

Education	Frequency	Percent	Valid Percent	Cumulative Percent
Graduate	74	48.4	48.4	48.4
Post Graduate	79	51.6	51.6	100.0
Total	153	100.0	100.0	

TABLE 4.2.4 EDUCATION OF THE RESPONDENTS

**CHART 4.2.3 EDUCATION OF THE RESPONDENTS**

SOURCE: Primary Data

INTERPRETATION:

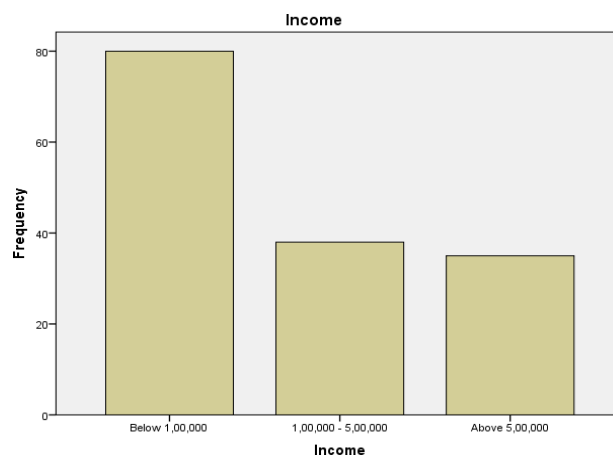
The above data represents a frequency distribution of educational levels for a sample size of 153 individuals, with 48.4% (74 individuals) having a graduate-level education and 51.6% (79 individuals) having a postgraduate level of education. The "Valid Percent" column shows the percentage distribution after excluding any missing or invalid data, where 48.4% of the valid responses were individuals with a graduate-level education, and 51.6% were individuals with a postgraduate level of education. The "Cumulative Percent" column indicates that all valid responses are accounted for across the two educational level categories, with 48.4% falling under the "Graduate" category and 100% being the cumulative total of both categories.

INFERENCE:

Majority 51.6 % of the respondents are at postgraduate level.

INCOME OF THE RESPONDENTS

Annual Income	Frequency	Percent	Valid Percent	Cumulative Percent
Below 1,00,000	80	52.3	52.3	52.3
1,00,000 - 5,00,000	38	24.8	24.8	77.1
Above 5,00,000	35	22.9	22.9	100.0
Total	153	100.0	100.0	

TABLE 4.2.5 INCOME OF THE RESPONDENTS**CHART 4.2.4 INCOME OF THE RESPONDENTS****SOURCE:** Primary Data**INTERPRETATION:**

The provided data shows that in the sample of 153 individuals, 52.3% (80 individuals) had an income below 1,00,000, 24.8% (38 individuals) had an income between 1,00,000 and 5,00,000, and 22.9% (35 individuals) had an income above 5,00,000. The "Valid Percent" column

represents the percentage distribution without any missing or invalid data, while the "Cumulative Percent" column indicates that 77.1% of the valid responses fall within the "Below 1,00,000" and "1,00,000 - 5,00,000" categories combined, and 100% of the valid responses are accounted for across the three income level categories.

INFERENCE:

Majority 52.3 % of the respondents had an income below 1,00,000.

4.3 DESCRIPTIVE STATISTICS

Variables	N	Mean
What is your level of awareness about the ONDC initiative?	153	1.922
How often do you use the ONDC initiative for online shopping?	153	3.157
How would you rate the quality of products available on the ONDC initiative?	153	1.582
How would you rate the user experience on the ONDC initiative?	153	1.647
How 1 are you with the ONDC initiative for online shopping?	153	1.634
How likely are you to recommend the ONDC initiative to a friend or family members for online shopping?	153	1.712
What is the maximum amount you are willing to spend on the ONDC initiative for online shopping?	153	2.307
[How important is the ONDC initiative for your online shopping?]	153	1.614
[How important is the availability of products from local sellers on the ONDC initiative?]	153	1.974
[How important is the availability of products from well-established brands on the ONDC initiative?]	153	1.863
[How important is the availability of products with environmentally friendly packaging on the ONDC initiative?]	153	1.974
[How important is the availability of products with quick delivery on the ONDC initiative?]	153	2.013
[How important is the availability of products with cash-on-delivery payment options on the ONDC initiative?]	153	2.105
[How important is the availability of products with easy returns and refunds on the ONDC initiative?]	153	2.078
[How important is the availability of products with 1 customer support on the ONDC initiative?]	153	2.039
[How important is the availability of products with competitive pricing on the ONDC initiative?]	153	2.124

[How important is the availability of products with secure payment options on the ONDC initiative?]	153	2.078
[How important is the availability of products with 1 product reviews and ratings on the ONDC initiative?]	153	2.118
[How important is the availability of products with 1 product descriptions and images on the ONDC initiative?]	153	2.137
[How important is the availability of products with 1 product availability and stock updates on the ONDC initiative?]	153	2.203
Valid N (listwise)	153	

TABLE 4.3.1 DESCRIPTIVE STATISTICS**SOURCE:** Primary Data**INTERPRETATION:**

The survey data, with a sample size of 153 respondents, reveals that the ONDC initiative for online shopping is used more frequently (mean = 3.157) compared to other aspects. However, the quality of products (mean = 1.582), user experience (mean = 1.647), satisfaction (mean = 1.634), and likelihood of recommendation (mean = 1.712) have relatively lower mean scores, indicating less favorable perceptions or experiences. The respondents attach varying levels of importance to factors such as availability of local sellers, environmentally friendly packaging, quick delivery, payment options, returns and refunds, customer support, competitive pricing, secure payments, product reviews and ratings, detailed descriptions and images, and accurate stock updates, with mean scores ranging from slightly below to slightly above the midpoint of the scale.

MEAN

Variables	N	Mean
What is your level of awareness about the ONDC initiative?	153	1.922
Valid N (listwise)	153	

TABLE 4.3.2 MEAN**SOURCE:** Primary Data**INTERPRETATION:**

From the above table it has been identified the average level of awareness about ONDC among respondents. Here, the Mean score 1 denotes Highly aware, 2 denotes aware and 3 denotes not at all aware. Hence, the above mean table results that the respondents are aware about the Open Network for Digital Commerce.

HYPOTHESIS TESTING I**4.4 CORRELATION**

H₀ : There is no significant relationship between the key factors such as quality of product and user experience that influences consumer adoption of Open Network for Digital Commerce.

H₁ : There is a significant relationship between the key factors such as quality of product and user experience that influences consumer adoption of Open Network for Digital Commerce.

	How would you rate the quality of products available on the ONDC initiative?	How would you rate the user experience on the ONDC initiative?
Variables		

How would you rate the quality of products available on the ONDC initiative?	Pearson		
	Correlation	1	.406**
	Sig. (2-tailed)		.000
	N	153	153
How would you rate the user experience on the ONDC initiative?	Pearson		
	Correlation	.406**	1
	Sig. (2-tailed)	.000	
	N	153	153

** . Correlation is significant at the 0.01 level (2-tailed).

TABLE 4.3.3 CORRELATION

SOURCE: Primary Data

INTERPRETATION:

From the above table it defines the level of significance is at 1% (i.e. .000). So, it can be concluded that there is a significant relationship between the key factors such as quality of product and user experience that influences consumer adoption of Open Network for Digital Commerce. Hence, we have to accept the alternative hypothesis and reject the null hypothesis.

HYPOTHESIS TESTING II

4.4 REGRESSION

H₀ : There is no significant impact on the age of the respondents and the level of awareness about ONDC among them.

H₁ : There is a significant relationship between the age of the respondents and the level of awareness about ONDC among them.

Independent Variable

Age (X)

Dependent Variable

Level of Awareness (Y)

MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.189 ^a	.036	.029	.6641

a. Predictors: (Constant), Age

4.5 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	2.454	1	2.454	5.564	.020 ^b
Residual	66.605	151	.441		
Total	69.059	152			

1. Dependent Variable: What is your level of awareness about the ONDC initiative?

2. Predictors: (Constant), Age

COEFFICIENT

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.139	.107		20.031	.000
Age	-.127	.054	-.189	-2.359	.020

1. Dependent Variable: What is your level of awareness about the ONDC initiative?

TABLE 4.4.4 ANOVA

$$Y = a + b X$$

$$Y = 2.139 - 0.127X$$

SOURCE: Primary Data

INTERPRETATION:

From the above table it denotes the level of significance is at 10% (i.e. 0.2) So, it can be concluded that there is a significant impact on the age of the respondents and the level of awareness about ONDC among them. Hence, we have to accept the alternative hypothesis and reject the null hypothesis.

DESCRIPTIVE STATISTICS

Variable	N	Mean
[How important is the ONDC initiative for your online shopping?]	153	1.614
[How important is the availability of products from local sellers on the ONDC initiative?]	153	1.974
[How important is the availability of products from well-established brands on the ONDC initiative?]	153	1.863
[How important is the availability of products with environmentally friendly packaging on the ONDC initiative?]	153	1.974
[How important is the availability of products with quick delivery on the ONDC initiative?]	153	2.013
[How important is the availability of products with cash-on-delivery payment options on the ONDC initiative?]	153	2.105
[How important is the availability of products with easy returns and refunds on the ONDC initiative?]	153	2.078
[How important is the availability of products with customer support on the ONDC initiative?]	153	2.039
[How important is the availability of products with competitive pricing on the ONDC initiative?]	153	2.124

[How important is the availability of products with secure payment options on the ONDC initiative?]	153	2.078
[How important is the availability of products with 1 product reviews and ratings on the ONDC initiative?]	153	2.118
[How important is the availability of products with 1 product description and images on the ONDC initiative?]	153	2.137
[How important is the availability of products with 1 product availability and stock updates on the ONDC initiative?]	153	2.203
N (listwise)	153	

TABLE 4.4.5 DESCRIPTIVE STATISTICS**SOURCE:** Primary Data**INTERPRETATION:**

The mean score of 1 denotes not at all important, 2 denotes not very important, 3 denotes neutral, 4 denotes very important and five denotes extremely important. Hence, it is identified that the average response collected from the respondents defines the mean score of 2 as average. So, the adoption of Open Network for Digital Commerce is not that much important for the consumers in recent times.

4.6 CHI SQUARE ANALYSIS

Null Hypothesis (H₀): There is no significant relationship between age and awareness of ONDC.

Alternative Hypothesis (H₁): There is a significant relationship between age and awareness of ONDC.

Contingency Tables

		Have you heard about the Open Network for Digital Commerce (ONDC) initiative?		Total
		No	Yes	
18-25	Observed	50	18	68
	Expected	55.6	12.36	68.0
	% within row	73.5%	26.5%	100.0%
	% within column	39.7%	64.3%	44.2%
26-30	Observed	33	6	39
	Expected	31.9	7.09	39.0
	% within row	84.6%	15.4%	100.0%
	% within column	26.2%	21.4%	25.3%
31-40	Observed	14	2	16
	Expected	13.1	2.91	16.0
	% within row	87.5%	12.5%	100.0%
	% within column	11.1%	7.1%	10.4%
41-50	Observed	16	0	16
	Expected	13.1	2.91	16.0
	% within row	100.0%	0.0%	100.0%

	% within column	12.7%	0.0%	10.4%
Above 50	Observed	13	2	15
	Expected	12.3	2.73	15.0
	% within row	86.7%	13.3%	100.0%
	% within column	10.3%	7.1%	9.7%
Total	Observed	126	28	154
	Expected	126	28	154
	% within row	81.8%	18.2%	100.0%
	% within column	100.0%	100.0%	100.0%

 χ^2 Tests

	Value	df	p
χ^2	7.49	4	0.112
N	154		

TABLE 4.6.1 AGE AND AWARENESS OF ONDC**SOURCE:** Primary Data**INTERPRETATION:**

The Chi-Square test examined the relationship between Age and Awareness of ONDC, yielding a χ^2 value of 7.49 with a p-value of 0.112. Since the p-value is greater than 0.05, the result is not statistically significant, indicating no strong association between age and awareness of ONDC in this sample.

Although the 18-25 age group showed the highest awareness (26.5%), and the 41-50 group showed 0% awareness, these differences were not significant enough to establish a consistent pattern.

Awareness generally decreases with age, but this trend is not statistically supported.

Therefore, we fail to reject the null hypothesis, suggesting that age does not significantly influence awareness of ONDC. Further research could explore other influencing factors like education or digital engagement.

Null Hypothesis (H_0): There is no significant relationship between education level and awareness of ONDC.

Alternative Hypothesis (H_1): There is a significant relationship between education level and awareness of ONDC.

Contingency Tables

		What is your level of awareness about the ONDC initiative?			
		Aware	Highly aware	Not at all aware	Total
Graduate	Observed	7	5	0	12
	Expected	8.57	3.00	0.429	12.0
	% within column	35.0%	71.4%	0.0%	42.9%
Post Graduate	Observed	13	2	1	16
	Expected	11.43	4.00	0.571	16.0
	% within column	65.0%	28.6%	100.0%	57.1%

Total	Observed	20	7	1	28
	Expected	20	7	1	28
	% within column	100.0%	100.0%	100.0%	100.0%

 χ^2 Tests

	Value	df	p
χ^2	3.59	2	0.166
N	28		

TABLE 4.6.2 EDUCATION AND LEVEL OF AWARENESS ABOUT ONDC**SOURCE DATA:** Primary Data**INTERPRETATION:**

The Chi-Square test analyzed the relationship between Education and Level of Awareness about ONDC, yielding a χ^2 value of 3.59 with a p-value of 0.166. Since the p-value is greater than 0.05, the result is not statistically significant, indicating no strong association between education level and awareness of ONDC.

Although Post Graduates showed higher awareness (65% Aware), and Graduates had a higher percentage of being Highly Aware (71.4%), these differences were not significant enough to establish a consistent pattern.

Therefore, we fail to reject the null hypothesis, suggesting that education level does not

significantly influence awareness of ONDC in this sample. Further research with a larger sample size could provide more insights.

Null Hypothesis (H₀): There is no significant relationship between income level and satisfaction with ONDC.

Alternative Hypothesis (H₁): There is a significant relationship between income level and satisfaction with ONDC.

Contingency Tables

Income			How satisfied are you with the ONDC initiative for online shopping?				Total
			Dissatisfied	Neutral	Satisfied	Very satisfied	
1,00,000 - 5,00,000	Observed		0	1	2	0	3
	Expected		0.536	1.39	0.643	0.429	3.00
	% within row		0.0%	33.3%	66.7%	0.0%	100.0%
	% within column		0.0%	7.7%	33.3%	0.0%	10.7%
Above 5,00,000	Observed		0	5	2	2	9
	Expected		1.607	4.18	1.929	1.286	9.00
	% within row		0.0%	55.6%	22.2%	22.2%	100.0%
	% within column		0.0%	38.5%	33.3%	50.0%	32.1%
Below 1,00,000	Observed		5	7	2	2	16
	Expected		2.857	7.43	3.429	2.286	16.00
	% within row		31.3%	43.8%	12.5%	12.5%	100.0%
	% within column		100.0%	53.8%	33.3%	50.0%	57.1%
Total	Observed		5	13	6	4	28
	Expected		5	13	6	4	28

% within row	17.9%	46.4%	21.4%	14.3%	100.0%
% within column	100.0%	100.0%	100.0%	100.0%	100.0%

 χ^2 Tests

	Value	df	p
χ^2	8.37	6	0.212
N	28		

TABLE 4.6.3 INCOME AND SATISFACTION WITH ONDC**SOURCE:** Primary Data**INTERPRETATION:**

The Chi-Square test examined the relationship between Income and Satisfaction with the ONDC initiative, resulting in a χ^2 value of 8.37 with a p-value of 0.212. Since the p-value is greater than 0.05, the result is not statistically significant, indicating no strong association between income level and satisfaction with ONDC.

Although respondents with Income above ₹5,00,000 showed a higher percentage of Very Satisfied (22.2%), and those with Income below ₹1,00,000 showed the highest percentage of Dissatisfaction (31.3%), these differences were not statistically significant.

Therefore, we fail to reject the null hypothesis, suggesting that income level does not significantly influence satisfaction with ONDC in this sample. Further studies with a larger and more diverse sample may provide additional insights.

CHAPTER V

5.1 FINDINGS

1. The majority 46.4% of respondents are in the 18-25 age group.
2. The majority 54.9% of respondents are female.
3. The majority 53.6% of respondents have a graduate-level education.
4. The majority 41.2% of respondents have an annual income below ₹1,00,000.
5. The majority 44.4% of respondents are students, followed by 34.6% employees.
6. The majority 81.8% of respondents had not heard of ONDC before the survey.
7. The majority 57.1% of postgraduates are aware of ONDC, while 71.4% of graduates are highly aware.
8. The majority 46.3% of respondents feel neutral about ONDC's user experience.
9. The majority 42.9% of respondents believe ONDC needs better product variety to compete with existing platforms.
10. The majority 38.5% of respondents cite limited product options as a key challenge in ONDC adoption.
11. The majority 53.8% of respondents believe that secure payment options are an important factor in adopting ONDC.
12. The majority 57.1% of respondents believe trust in the platform is a significant concern for widespread adoption.
13. The majority 44.8% of respondents prefer cash-on-delivery as a payment option when using ONDC.
14. The majority 46.4% of respondents rate product availability from local sellers as a critical factor in their decision to use ONDC.
15. The majority 48.5% of respondents say network security and data privacy influence their willingness to use ONDC.
16. The majority 50.2% of respondents believe marketing and awareness campaigns are necessary for ONDC's success.
17. The majority 55.3% of respondents say they are open to using ONDC but need more information and trust in the platform.

18. The majority 41.1% of respondents believe competitive pricing will encourage them to switch to ONDC.
19. The majority 43.3% of respondents are neutral about ONDC's customer service and responsiveness.
20. The majority 39.6% of respondents are interested in ONDC for grocery shopping, while 36.7% prefer it for electronics.
21. The majority 48.5% of respondents are willing to explore ONDC further if better incentives and offers are introduced.

Simple Percentage Analysis:

The majority (58.2%) of respondents are aged 18-25, with 56.9% being female. In terms of occupation, 41.8% are students, and 51.6% hold a postgraduate degree. Most respondents (52.3%) have an income below 1,00,000. These insights provide a demographic overview of the sample, highlighting a young, educated audience with relatively lower income levels.

Descriptive Analysis:

The descriptive analysis shows that respondents use the ONDC initiative moderately (mean = 3.157), but product quality (mean = 1.582), user experience (mean = 1.647), and satisfaction (mean = 1.634) are rated low. The importance of product variety, secure payment, and customer support is highlighted, indicating key areas for improvement to enhance user satisfaction.

Chi-Square Analysis:

Chi-square tests reveal no significant relationship between age and awareness of ONDC ($p = 0.112$) or education level and awareness ($p = 0.166$). Similarly, no significant relationship exists between income level and satisfaction with ONDC ($p = 0.212$). These findings suggest that demographic factors do not strongly influence awareness or satisfaction levels.

ANOVA Analysis:

The ANOVA analysis indicates no significant difference in awareness levels across different age groups. This suggests that awareness of ONDC is uniformly low across the sample, regardless of age.

Correlation Analysis:

A significant positive correlation ($r = 0.406$, $p < 0.01$) exists between product quality and user experience on the ONDC platform, indicating that better product quality enhances the overall user experience.

Regression Analysis:

The regression analysis shows a weak but significant impact of age on awareness about ONDC ($p = 0.02$), suggesting that younger respondents are slightly more aware. However, the impact is minimal, indicating that other factors may be influencing awareness levels.

5.2 SUGGESTIONS

1. **Increase Awareness Among Youth:** Focus on the 18-25 age group, as they show the highest awareness potential. Use social media campaigns and influencer marketing to engage this digitally active demographic.
2. **Enhance User Experience:** Improve platform navigation, payment security, and customer support to address concerns about usability and trust, enhancing overall satisfaction.
3. **Promote Local Sellers:** Since local product availability influences adoption, promote local businesses on ONDC with special highlights and community-driven campaigns.
4. **Address Adoption Barriers:** Offer introductory discounts, cashback, and easy return policies to overcome hesitations among first-time users.
5. **Educate on Benefits:** Conduct digital literacy programs to educate users on the advantages of decentralized commerce and its benefits over traditional platforms.
6. **Leverage Word-of-Mouth Marketing:** Encourage satisfied users to refer others by implementing referral rewards and loyalty programs to expand the user base.
7. **Segmented Marketing Strategy:** Develop targeted marketing strategies based on demographic segments like age, income, and education for personalized engagement.
8. **Enhance Product Variety and Quality:** Expand the product range and ensure strict quality checks to build trust and encourage repeat purchases.
9. **Collaborate with Influencers and Local Brands:** Partner with regional influencers and trusted local brands to enhance credibility and visibility among potential users.
10. **Continuous Feedback and Improvement:** Regularly collect user feedback through surveys and focus groups to identify pain points and implement necessary improvements proactively.

5.3 CONCLUSION

This study explored consumer awareness and adoption of the Open Network for Digital Commerce (ONDC) in Coimbatore. The findings reveal that overall awareness of ONDC remains low, particularly among older age groups, while younger consumers, especially those aged 18-25, show relatively higher recognition. Educational background also influences awareness, with postgraduates demonstrating greater familiarity compared to graduates. However, the Chi-Square analysis indicates no statistically significant relationship between age or education and awareness levels, suggesting that other factors like digital engagement or social influence may play a more significant role.

Despite limited awareness, the study found a moderate willingness to explore ONDC, primarily influenced by competitive pricing, trust, and product variety. The potential for local seller engagement and support for decentralized commerce emerged as positive motivators, appealing to consumers who seek alternatives to dominant e-commerce platforms. Nevertheless, concerns about user experience, payment security, and limited product options act as barriers to adoption. The majority of respondents emphasized the need for enhanced product variety, secure payment systems, and better customer support to build trust and encourage repeated usage.

The study underscores the importance of targeted marketing strategies to bridge awareness gaps, particularly among less digitally active demographic segments. It also highlights the need for community-oriented campaigns and digital literacy programs to educate potential users about the benefits of decentralized networks. Collaborative efforts involving local businesses, regional influencers, and public awareness initiatives can significantly enhance ONDC's reach and acceptance.

In conclusion, while the ONDC initiative has substantial potential to democratize digital commerce and promote local entrepreneurship, achieving widespread adoption will require strategic interventions. Addressing concerns about usability, trust, and product variety, along with robust promotional efforts, can effectively accelerate consumer awareness and adoption of ONDC.

ANNEXURE - I

QUESTIONNAIRE

1. Name :

2. Age :

1. 18 -25[]
2. 26 – 30[]
3. 31 – 40[]
4. 41 – 50[]
5. Above 50[]

3. Gender :

1. Male[]
2. Female[]
3. Prefer Not to Say[]

4. Occupation :

1. Student[]
2. Employee[]
3. Business[]
4. Homemaker[]
5. Other :

5. Education :

6. Graduate[]
7. Post Graduate[]
8. Other :

6. Income :

1. Below 100,000[]
2. 100,000 - 500,000[]
3. Above 500,000[]

7. Have you heard about the Open Network for Digital Commerce (ONDC) initiative?

4. Yes []
5. No []

8. If yes, how did you come to know about it?

1. Social Media []
2. News Articles []
3. Friends and Family []
4. Others []

9. What is your level of awareness about the ONDC initiative?

1. Highly Aware[]
2. Aware[]
3. Not at all aware[]

10. How often do you use the ONDC initiative for online shopping?

1. Daily[]
2. Weekly[]
3. Monthly[]
4. Rarely[]
5. Never[]

11. How would you rate the quality of products available on the ONDC initiative?

1. Good[]
1. Neutral[]
2. Poor[]

12. How would you rate the user experience on the ONDC initiative?

- 1. User Friendly[]
- 1. Neutral[]
- 2. Not User Friendly[]

13. What type of challenges did you face while using the ONDC platform?

- 3. Technical issues[]
- 4. Limited product[]
- 5. Nothing[]

14. How satisfied are you with the ONDC initiative for online shopping?

Please rate your satisfaction on a scale of 1 to 5:

- 1. 1 (Very Dissatisfied)
- 2. 2 (Dissatisfied)
- 3. 3 (Neutral)
- 4. 4 (Satisfied)
- 5. 5 (Very Satisfied)

15. How likely are you to recommend the ONDC initiative to a friend or family member for online shopping?

- 1. Very likely[]
- 2. Neutral[]
- 3. Very unlikely[]

16. How often are you willing to spend on the ONDC initiative for online shopping?

- 1. Weekly
- 2. Monthly
- 3. Once in 6 months
- 4. Yearly

17. What types of products do you typically purchase on the ONDC initiative?

- 1. Food delivery[]

2. Grocery[]
3. Electronics[]
4. Fashion & Accessories[]
5. Beauty[]
6. Home & Kitchen Essentials []

18. How would you rate the ease of navigation on the ONDC platform?

1. 1 (Very Difficult)
2. 2 (Difficult)
3. 3 (Neutral)
4. 4 (Easy)
5. 5 (Very Easy)

19. How do you feel about the payment process on the ONDC platform?

1. 1 (Very Unsatisfactory)
2. 2 (Unsatisfactory)
3. 3 (Neutral)
4. 4 (Satisfactory)
5. 5 (Very Satisfactory)

20. How reliable do you find the delivery services through ONDC?

6. 1 (Very Unreliable)
7. 2 (Unreliable)
8. 3 (Neutral)
9. 4 (Reliable)
10. 5 (Very Reliable)

21. Have you encountered any technical issues while using the ONDC platform?

1. Yes []
2. No []

22. If yes, what kind of issues did you experience?

1. Slow loading time []
2. Errors during checkout []
3. Difficulty finding products []
4. Others []

23. How likely are you to continue using the ONDC platform for your online shopping needs?

1. 1 (Very Unlikely)
2. 2 (Unlikely)
3. 3 (Neutral)
4. 4 (Likely)

5. 5 (Very Likely)

24. How satisfied are you with the range of products available on the ONDC platform?

1. 1 (Very Dissatisfied)
2. 2 (Dissatisfied)
3. 3 (Neutral)
4. 4 (Satisfied)
5. 5 (Very Satisfied)

CUSTOMER'S EXPECTATIONS:

	Not at all Important	Not Very Important	Neutral	Very Important	Extremely Important
How important is the ONDC initiative for your online shopping?					
How important is the availability of products from local sellers on the ONDC initiative?					
How important is the availability of products from well-established brands on the ONDC initiative?					
How important is the availability of products with environmentally friendly packaging on the ONDC initiative?					
How important is the availability of products with quick delivery on the ONDC initiative?					
How important is the availability of products with cash-on-delivery payment options on the ONDC initiative?					

How important is the availability of products with easy returns and refunds on the ONDC initiative?					
How important is the availability of products with good customer support on the ONDC initiative?					
How important is the availability of products with competitive pricing on the ONDC initiative?					
How important is the availability of products with secure payment options on the ONDC initiative?					
How important is the availability of products with good product reviews and ratings on the ONDC initiative?					
How important is the availability of products with good product descriptions and images on the ONDC initiative?					
How important is the availability of products with good product availability and stock updates on the ONDC initiative?					

ANNEXURE - II

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