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Impact of Digitalization on Inventory Management: A Comparative Study Between Traditional and E-Commerce Business

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ABSTRACT

Digitalization has profoundly impacted inventory management practices, transforming how businesses manage their inventory. This dissertation presents a comparative study of the impact of digitalization on inventory management in traditional businesses and e-commerce businesses. The study examines how digital technologies have revolutionized inventory management processes in both types of businesses, highlighting the benefits and challenges faced by each.

The research explores how digitalization has enhanced inventory visibility, demand forecasting accuracy, and overall inventory efficiency in traditional businesses. It also investigates how e-commerce businesses have leveraged digital technologies to optimize inventory control, reduce stockouts, and improve customer satisfaction through faster order processing and delivery.

In this research project mix method analysis i.e. Qualitative and Quantitative was used. Primary data was collected through structured questionnaire from the people who are aware about the digitalization. Secondary data will be collected from published research papers, articles, Newspapers, Books, etc. The sample size for this study is 66. The random sampling technique will be used to collect the data. In this study, different statistical tools are used as per requirement to analysis and validate the research objectives.

The findings of this study contribute to a deeper understanding of how digitalization has transformed inventory management practices in traditional and e-commerce businesses. The research highlights the importance of adopting digital technologies to stay competitive in today's digital economy and provides recommendations for businesses looking to enhance their inventory management practices through digitalization.

In this study, there are six chapters – Introduction, Review of Literature, Comparison between traditional and e-commerce business, Analysis of results and interpretations, Findings/Discussion & Recommendations, Conclusions.

Keywords: - Digitalization, inventory management, traditional businesses, e-commerce businesses, demand forecasting, inventory efficiency, inventory control, customer satisfaction, sales, procurement, production, competitive advantage.

CHAPTER – 1
INTRODUCTION

1.1) Introduction

Inventory refers to both the raw materials used in production and the finished goods available for sale. It is a crucial asset for companies as it represents a primary source of revenue generation and earnings for shareholders. There are three main types of inventories: raw materials, work-in-progress, and finished goods. Inventory is classified as a current asset on a company's balance sheet (www.investopedia.com/inventory.asp).

Inventory control ensures that items are available to customers when needed by coordinating purchasing, manufacturing, and distribution. This includes supplying current sales items, new products, consumables, spare parts, obsolete items, and other supplies(Wild Tony, 2002). Inventory planning is undergoing significant change due to the integration of digital supply data, replacing traditional techniques(Niaz, n.d.).

Digitalization refers to the process of integrating digital technologies into various aspects of business, society, and everyday life. It involves the adoption and utilization of digital tools, systems, and processes to transform traditional analogy practices into digital formats. It is a transformative process that can disrupt traditional business models and industries, as seen in examples like Uber, Airbnb, and streaming services (Parviainen et al., 2017).

Traditional Business: -

Traditional commerce is the established approach to business transactions that involves operating through physical storefronts, engaging in face-to-face interactions, and utilizing traditional communication methods. Businesses in traditional commerce are based in physical locations like retail stores, offices, or warehouses, where customers physically visit to make purchases or access services. Transactions in traditional commerce commonly involve in-person payments using cash, checks, or credit/debit cards (Kaur, n.d.).

Fig.1 (officechai.com/startups)

Traditional technique of Inventory Management

Traditional techniques of inventory management involve the manual tracking and control of inventory levels, typically using methods such as spreadsheets, physical counts, and basic forecasting.

E – Commerce Business: -

E-commerce, short for electronic commerce, refers to a broad range of online business activities involving the buying and selling of goods and services over the internet or other electronic networks. It encompasses any form of business transaction where parties interact electronically rather than through physical exchanges or direct contact. E-commerce involves the use of electronic communications and digital information processing technologies to facilitate transactions, create new business models, and redefine

traditional business practices (E-COMMERCE: ROLE OF E-COMMERCE IN TODAY'S BUSINESS, n.d.).

Fig.2 (www.insightssuccess.in/3nderstanding-commerce)

Modern technique of Inventory Management

Modern inventory management refers to the use of advanced techniques, technologies, and strategies to efficiently control, track, and optimize inventory levels within an organization. It involves the application of innovative approaches to address the challenges and complexities of managing inventory in today's dynamic business environment.

1.2) Objective of the study

To identify and analyse the impact of digitalization on inventory management and how traditional businesses and e-commerce businesses manage their inventory as well as what difference shown in both types of businesses. The study aim is to evaluate the difference between traditional business inventory management and e-commerce inventory management, the research seeks to contribute that which one of the inventory managements is more effective for the business.

Purpose of the Research

The purpose of the dissertation report on the topic "Impact of Digitalization on Inventory Management: A Comparative Study of Traditional and E-Commerce Business" is to:

1. Investigate and analyse the extent of digitalization in inventory management practices of traditional businesses and e-commerce businesses.
2. Compare the impact of digitalization on inventory management efficiency, accuracy, and cost-effectiveness between traditional and e-commerce businesses.
3. Examine the challenges and barriers faced by traditional and e-commerce businesses in implementing digitalization in inventory management and propose strategies to overcome these challenges.
4. Provide recommendations for traditional businesses and e-commerce businesses to enhance their inventory management practices through digitalization, based on the findings of the comparative study.

1.3) Research Methodology

Research Gap

While there is significant research on the impact of digitalization on inventory management in either traditional or e-commerce businesses individually, there is a absence of comprehensive study which directly compare the effect of digitalization in inventory management practices between traditional business and e-commerce business. The gap is understanding how digitalization affects inventory management incomparably in traditional vs e-commerce businesses. This dissertation search for fill this gap by carrying out a comparative study to provide insights into direct impacts of digitalization on inventory management practices in traditional and e-commerce business.

Data collection methods

To accomplish the stated goals, data were gathered from two sources: primary and secondary.

- Secondary Data Sources:
- Scholarly journals
- Periodicals
- Magazines
- Books
- Unpublished documents
- Primary Data Source:
- Questionnaire administered directly to sample respondents
- Secondary Data Source:
- Secondary data came from existing literature and publications, while primary data involved collecting new information directly from a sample of respondents using a structured questionnaire.

Data collection forms:

a. Data collection medium: - The secondary data were obtained from various scholarly journals, periodicals, magazines, books, and unpublished documents. The primary data were collected directly from the sample respondents through a pre-designed and tested questionnaire, The nature of the questions and the diverse locations of the respondents (different companies), it is reasonable to assume that the data collection method could be a self-administered online survey or questionnaire.

b. The questions in questionnaire: The questions in the questionnaire appear to be focused on gathering information about various aspects on the Impact of digitalization on Inventory Management: A comparative study of Traditional and E – Commerce Business

c. Kinds of scales used: The nature of the questions, it is likely that a combination of open-ended questions, multiple-choice questions, and rating scales (e.g., Likert scales) were employed to capture both qualitative and quantitative data.

d. Ethical Considerations: The study adheres to ethical guidelines, ensuring informed consent from participants and confidentiality of their responses. Any personal or sensitive information is anonymized in the final report.

e. Limitations: The study may be limited by factors such as the availability of data and the willingness of businesses to participate. The findings also be influenced by the specific characteristics of the businesses sampled.

f. Validity and Reliability: To ensure the validity and reliability of the study, the survey questionnaire is pre-tested with a small sample of participants. The use of established measurement scales and statistical methods is also enhancing the validity and reliability of the findings.

Overall, the research methodology will provide a comprehensive understanding of the impact of digitalization on inventory management in traditional and e-commerce businesses, helping to identify best practices and areas for improvement in both types of businesses.

2.2) General Research Question

a. What are the challenges faced by traditional businesses in adopting digital inventory management practices?

b. What is the current level of digitalization in inventory management practices among traditional brick-and-mortar businesses and e-commerce businesses?

c. How does digitalization impact inventory management efficiency in e-commerce businesses compared to traditional brick-and-mortar businesses?
d. What are the common types of inventory management software used by e-commerce businesses and traditional brick-and-mortar businesses?
e. What are the main differences in inventory management practices between traditional brick-and-mortar businesses and e-commerce businesses?
f. How can training and education on digital tools and technologies be effectively implemented to improve inventory management practices in both types of businesses?

2.3) Specific Research Question (Hypothesis)

a. **H1:** Traditional businesses have a lower level of digitalization in inventory management practices compared to e-commerce businesses.
b. **H2:** Digitalization significantly improves inventory management efficiency in e-commerce businesses compared to traditional businesses.
c. **H3:** Traditional brick-and-mortar management business face more challenges in implementing digitalization in inventory management compared to e-commerce businesses.
d. **H4:** Providing training and education on digital tools and technologies is crucial for improving inventory management practices in both types of businesses.

CHAPTER – 2
LITERATURE REVIEW

2.1) Literature Review

Digitalization refers to the reschedule of various patch of social life around digital communication and media framework. It involves the adoption or increased use of digital or computer technology by organizations, industries, countries, and other entities. Digitalization encompasses the broader societal implications of digitization, which is the technical process of converting comparable data into digital form. Digitalization plays an important role in shaping modern society in various ways:

1. Efficiency and Productivity: Digitalization can streamline processes, automate tasks, and improve efficiency in various sectors such as business, health protection, education, and government.
2. Innovation and determination: Embracing digital technologies can drive innovation, improve competitiveness, and create new chance for growth and development.
3. Global connection: Digitalization enables global connection, facilitating communication, collaboration, and information sharing across borders and cultures.
4. Access to Information: Digitalization provides easy access to information and resources, empowering people and organizations to make informed decisions and stay updated on current Sanrio.
5. Improve Communication: Digitalization enhance communication channels through various digital platforms, fostering connections and relationships on a domestic and global scale.
6. Data Analysis and Insights: Digitalization allows for the collection, analysis, and utilization of data to gain valuable insights, make data-driven decisions, and improve outcomes.
7. Societal Transformation: Digitalization is reshaping social structures, economies, governance systems, and cultural practices, influencing how people interact, work, and live in the digital age.
8. Environmental Impact: Digitalization can contribute to sustainability efforts by promoting paperless operations, remote work options, and energy-efficient technologies.

Overall, digitalization is essential for driving progress, fostering innovation, and adapting to the rapidly

evolving digital landscape in the modern world **(Brennen & Kreiss, 2016).**

Inventory refers to both the raw materials used in production and the finished goods available for sale. It is a crucial asset for companies as it represents a primary source of revenue generation and earnings for shareholders. There are three main types of inventories: raw materials, work-in-progress, and finished goods. Inventory is classified as a current asset on a company's balance sheet (www.investopedia.com/inventory.asp).

Inventory control ensures that items are available to customers when needed by coordinating purchasing, manufacturing, and distribution. This includes supplying current sales items, new products, consumables, spare parts, obsolete items, and other supplies(Wild Tony, 2002). Inventory planning is undergoing significant change due to the integration of digital supply data, replacing traditional techniques(Niaz, n.d.).

E-commerce, short for electronic commerce, refers to the purchasing and selling of goods and services over the electronic platform. It involves online transactions between businesses, consumers, or a combination of both. E-commerce utilizes electronic platforms such as websites, mobile apps, and online marketplaces to facilitate the exchange of products or services. Payment gateways are used to securely process online payments, and logistics services ensure the delivery of goods to customers e-commerce has revolutionized the way businesses operate and how consumers shop. It offers convenience, accessibility, and a global reach, allowing businesses to reach customers beyond their physical locations.

Overall, e-commerce has become an integral part of modern business operations, enabling companies to expand their market reach, streamline processes, and provide a seamless shopping experience for customers ("An Overview of Electronic Commerce (e-Commerce)," 2021).

Modern inventory management refers to the use of modern techniques, technologies, and planning to efficiently control, track, and optimize inventory levels within an organization. It involves the application of creative approaches to address the challenges and complexities of managing inventory in today's dynamic business environment Some of the key aspects of modern inventory management include:

a. **Advanced Technology:** Utilizing inventory management software, barcode systems, RFID technology, and automated systems to streamline inventory tracking, reduce manual errors, and improve efficiency.
b. **Data Analytics:** Leveraging data analytics and forecasting tools to analyse historical data, predict demand patterns, and optimize inventory levels to meet customer demands while minimizing carrying costs.
c. **Just-in-Time (JIT):** Implementing JIT inventory systems to reduce in-process inventory, minimize carrying costs, and improve operational efficiency by receiving goods only when needed for production or sale.
d. **Vendor Collaboration:** Engaging in collaborative relationships with vendors through techniques like Vendor-Managed Inventory (VMI) to enhance supply chain efficiency, reduce lead times, and improve inventory control.
e. **Supply Chain Integration:** Integrating inventory management with other supply chain functions to achieve seamless coordination, visibility, and responsiveness across the entire supply chain network.

Overall, modern inventory management focuses on adopting proactive, data-driven, and technology-enabled approaches to ensure that organizations maintain optimal inventory levels, reduce costs, improve customer service, and enhance overall operational efficiency (Aro-Gordon & Gupte, n.d.).

Traditional business refers to the conventional way of conducting business operations without the use of modern technologies or innovative approaches. In traditional business practices, processes are often

manual, hierarchical, and less flexible. This approach may involve paper-based documentation, face-to-face communication, and rigid organizational structures. Traditional businesses may be slower to adapt to changes in the market and may face challenges in efficiency and competitiveness compared to businesses that embrace digital transformation and modern management practices (Suša Vugec et al., 2018).

Traditional techniques of inventory management involve the manual tracking and control of inventory levels, typically using methods such as spreadsheets, physical counts, and basic forecasting These methods are often labour-intensive and prone to human error. Some common traditional techniques include:

a. **ABC Analysis:** ABC analysis categorizes inventory items based on their value and importance, allowing for prioritization of management efforts on high-value items.
b. **Just-in-Time (JIT):** JIT is a strategy where inventory is ordered and received only when needed for production or sales, reducing holding costs but requiring precise coordination with suppliers.
c. **Reorder Point:** The reorder point is the inventory level at which a new order should be placed to avoid stockouts, calculated based on lead time and demand variability.
d. **Safety Stock:** Safety stock is extra inventory held to mitigate the risk of stockouts due to unexpected demand fluctuations or supply chain disruptions.
e. **First-In-First-Out (FIFO) / Last-In-First-Out (LIFO):** These are methods of valuing inventory based on the assumption that items are sold in the order they are received (FIFO) or the most recent items are sold first (LIFO).

While these traditional techniques have been widely used for inventory management, advancements in technology and the adoption of more sophisticated inventory management systems have enabled businesses to improve efficiency, accuracy, and cost-effectiveness in managing their inventory levels (*Anagnostou.Christina (3)*, n.d.).

Fig.2 (safetyculture.com/topics/inventory-management-system)

CHAPTER – 3
DATA ANALYSIS & INTERPRITATION

H1: Traditional businesses have a lower level of digitalization in inventory management practices compared to e-commerce businesses.

To test the hypothesis that traditional businesses have a lower level of digitalization in inventory management practices compared to e-commerce businesses, we use a chi-square goodness-of-fit test. This test will help determine if the observed distribution of digitalization levels in traditional businesses significantly deviates from an expected distribution.

Given data:

Total number of responses = 66
Not digitalized at all = 9
Slightly digitalized = 22
Moderately digitalized = 21
Highly digitalized = 14

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

s

Expected frequency for each category = 66/4 = 16.5
Where:

- *O*i is the observed frequency,
- *E*i is the expected frequency.

Calculate for each category

$$\chi^2 = \frac{(9-16.5)^2}{16.5} + \frac{(22-16.5)^2}{16.5} + \frac{(21-16.5)^2}{16.5} + \frac{(14-16.5)^2}{16.5}$$
$$\chi^2 = \frac{(9-16.5)^2}{16.5} + \frac{(22-16.5)^2}{16.5} + \frac{(21-16.5)^2}{16.5} + \frac{(14-16.5)^2}{16.5}$$
$$\chi^2 = \frac{(7.5)^2}{16.5} + \frac{(5.5)^2}{16.5} + \frac{(4.5)^2}{16.5} + \frac{(2.5)^2}{16.5}$$
$$\chi^2 = \frac{56.25}{16.5} + \frac{30.25}{16.5} + \frac{20.25}{16.5} + \frac{6.25}{16.5}$$
$$\chi^2 = 3.41 + 1.83 + 1.23 + 0.38$$
$$\chi^2 = 6.85$$

Degrees of freedom (*df*) = number of categories - 1 = 4 - 1 = 3.
Using a chi-square distribution table with *df* = 3 and a significance level of 0.05, the critical value is approximately 7.815.
Since our calculated chi-square value (6.85) is less than the critical value (7.815), we fail to reject the null hypothesis. This suggests that there is not enough evidence to conclude that traditional businesses have a significantly different level of digitalization in inventory management practices compared to e-commerce businesses.

H2: Digitalization significantly improves inventory management efficiency in e-commerce businesses compared to traditional businesses.

To test the hypothesis that digitalization significantly improves inventory management efficiency in e-commerce businesses compared to traditional businesses, we can use a one-sample proportion test.
Define the hypotheses
Null hypothesis (H0): $p \leq 0.5$
Alternative hypothesis (H1): $p > 0.5$
Calculating the sample proportion
Given:
Total number of responses (n) = 66
Number of responses indicating "Significantly improved" or "Improved" (x) = 30 + 30 = 60
Sample proportion (p^):
P^ = x/n = 60/66 = 0.909
The test statistic for a one-sample proportion test is calculated as follows:

$$z = \frac{(\hat{p} - p_0)}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

Where:

- p^ is the sample proportion
- p0 is the hypothesized population (0.5),
- n is the sample size.

Plugging in the values:

$$z = \frac{(0.909 - 0.5)}{\sqrt{\frac{0.5 \times (1-0.5)}{66}}}$$
$$z = \frac{0.409}{\sqrt{\frac{0.25}{66}}}$$
$$z = \frac{0.409}{\sqrt{0.00378788}}$$
$$z = \frac{0.409}{0.0615}$$
$$z \approx 6.65$$

Using a z-table for a one-tailed test at the 0.05 significance level, the critical value is approximately 1.645. Since our calculated z-value (6.65) is much greater than the critical value (1.645), we reject the null hypothesis.

There is sufficient evidence to conclude that digitalization significantly improves inventory management efficiency in e-commerce businesses compared to traditional businesses.

H3: Traditional brick-and-mortar management business face more challenges in implementing digitalization in inventory management compared to e-commerce businesses.

To test the hypothesis that traditional brick-and-mortar businesses face more challenges in implementing digitalization in inventory management compared to e-commerce businesses, we can use a chi-square test of independence. This test will determine if there is a significant association between the type of business and the challenges faced in implementing digitalization.

Null hypothesis (H0): There is no association between the type of business (traditional brick-and-mortar, e-commerce, other) and the challenges faced in implementing digitalization.

Alternative hypothesis (H1): There is an association between the type of business (traditional brick-and-mortar, e-commerce, other) and the challenges faced in implementing digitalization.

	Face Challenges	Do not face challenges	Total
Traditional brick-and-mortar	24	0	24
E-commerce	19	10	29
Other	10	3	13
Total	53	13	66

Calculating the expected frequencies

$$\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

The expected frequency for each cell is calculated using the formula:
Eij = (row toral X column total) / Grand Total

	Face Challenges	Do not face challenges	Total
Traditional brick-and-mortar	24 x 53/66 = 19.27	24 x 13/66 = 4.73	24
E-commerce	29 x 53/66 = 23.27	29 x 13/66 = 5.73	29
Other	13 x 53/66 = 10.45	13 x 13/66 = 2.55	13
Total	53	13	66

Calculating the chi-square statistic
The chi-square statistic is calculated as:
Where *O*ij is the observed frequency and *E*ij is the expected frequency.

$$\chi^2 = \frac{(24-19.27)^2}{19.27} + \frac{(0-4.73)^2}{4.73} + \frac{(19-23.27)^2}{23.27} + \frac{(10-5.73)^2}{5.73} + \frac{(10-10.45)^2}{10.45} +$$

$$\chi^2 = \frac{(4.73)^2}{19.27} + \frac{(-4.73)^2}{4.73} + \frac{(-4.27)^2}{23.27} + \frac{(4.27)^2}{5.73} + \frac{(-0.45)^2}{10.45} + \frac{(0.45)^2}{2.55}$$

$$\chi^2 = \frac{22.36}{19.27} + \frac{22.36}{4.73} + \frac{18.23}{23.27} + \frac{18.23}{5.73} + \frac{0.20}{10.45} + \frac{0.20}{2.55}$$

$$\chi^2 = 1.16 + 4.73 + 0.78 + 3.18 + 0.02 + 0.08$$

$$\chi^2 = 9.95$$

Determining the critical value and comparing
Using a chi-square table with *df* = (rows - 1) * (columns - 1) = (3 - 1) * (2 - 1) = 2 degrees of freedom and a significance level of 0.05, the critical value is approximately 5.991.
Since our calculated chi-square value (9.95) is greater than the critical value (5.991), we reject the null hypothesis.
Conclusion
There is sufficient evidence to conclude that traditional brick-and-mortar businesses face more challenges in implementing digitalization in inventory management compared to e-commerce businesses.

H4: Providing training and education on digital tools and technologies is crucial for improving inventory management practices in both types of businesses.

To test the hypothesis that providing training and education on digital tools and technologies is crucial for improving inventory management practices in both types of businesses, we can use a one-sample proportion test.
Given:
Total number of responses (n) = 66
Number of "yes" responses (x) = 60
Number of "no" responses = 6
We want to test if the proportion of "yes" responses (p) is significantly greater than 0.5 (indicating that the majority believes training and education are crucial).
Define the hypotheses
Null hypothesis (H0): $p \leq 0.5$
Alternative hypothesis (H1): $p > 0.5$
Calculating the sample proportion

P^ = x/n = 60/66 0.909

Calculating the test statistic

The test statistic for a one-sample proportion test is calculated as follows:

$$z = \frac{(\hat{p} - p_0)}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

Where:

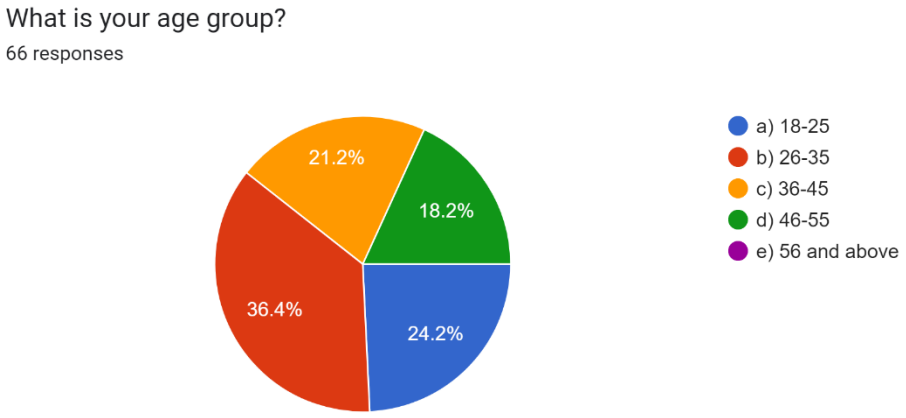
- p^ is the sample proportion
- p0 is the hypothesized population (0.5),
- n is the sample size.

Plugging in the values:

$$z = \frac{(0.909 - 0.5)}{\sqrt{\frac{0.5 \times (1-0.5)}{66}}}$$
$$z = \frac{0.409}{\sqrt{\frac{0.25}{66}}}$$
$$z = \frac{0.409}{\sqrt{0.00378788}}$$
$$z = \frac{0.409}{0.0615}$$
$$z \approx 6.65$$

Using a z-table for a one-tailed test at the 0.05 significance level, the critical value is approximately 1.645. Since our calculated z-value (6.65) is much greater than the critical value (1.645), we reject the null hypothesis.

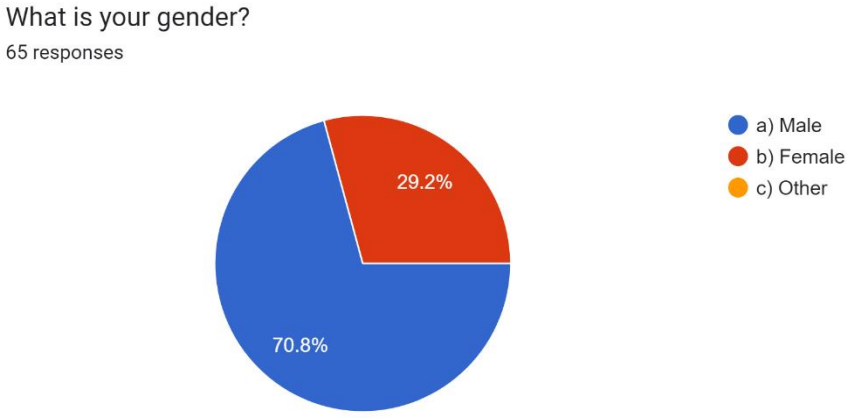
There is sufficient evidence to conclude that providing training and education on digital tools and technologies is crucial for improving inventory management practices in both traditional and e-commerce businesses.



Age	Respond
18 – 25	16
26 – 35	24
36 – 45	14
46 – 55	12
56 and above	0

Interpretation: -

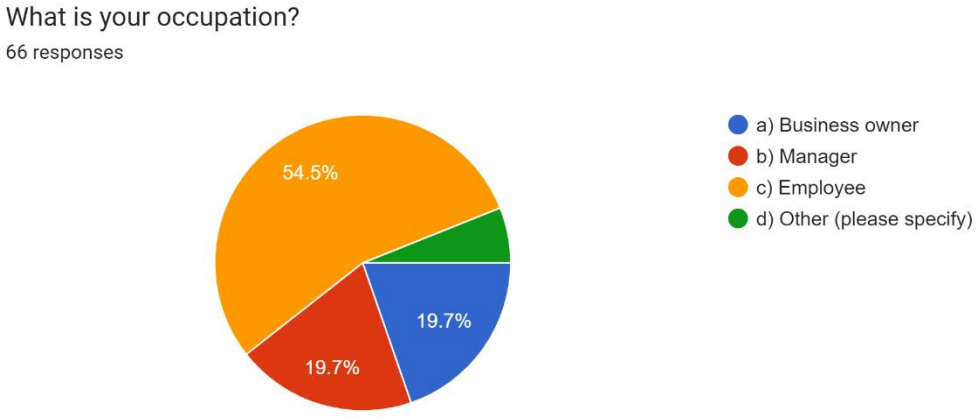
- 16 of the people are in between 18-25 age group.
- 24 of the people are in between 26-35 age group.
- 14 of the people are in between 36-45 age group.
- 12 of the people are in between 46-55 age group.



Gender	Respond
Male	46
Female	19
Other	0

Interpretation: -

- In our survey 46 people are male.
- And 19 people are female.

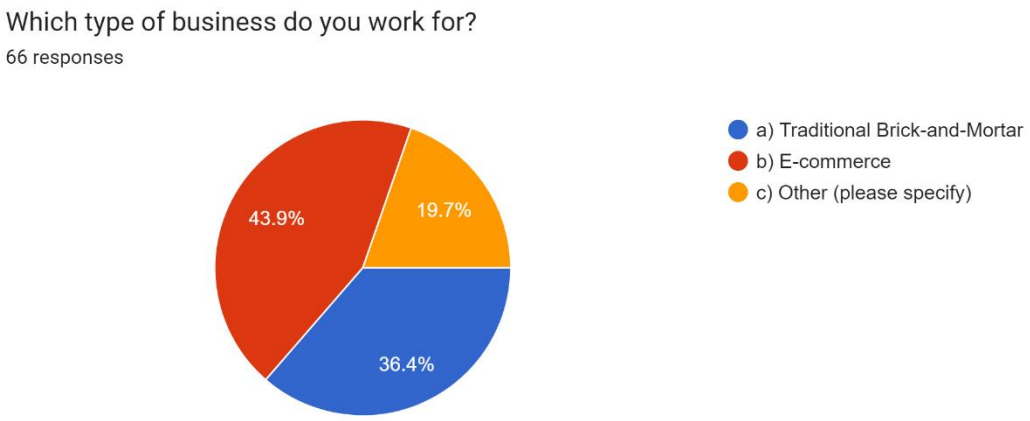


Occupation	Respond
Business owner	13
Manager	13
Employee	36
Other	4

Interpretation: -

According to our survey occupations of people are as follows:

- 13 people are business owner
- 13 people are manager
- 36 people are employee
- And 4 are belongs to other

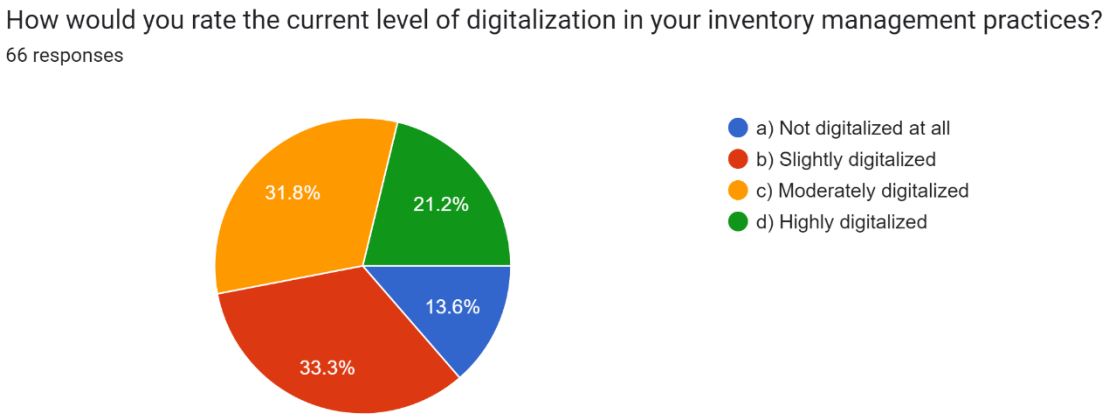


Business	Respond
Traditional Brick and Mortar	24
E – Commerce	29
Other	13

Interpretation: -

According to our survey types of business working for are as follow:

- 24 people are work in Traditional Brick and Mortar
- 29 people are work for e-commerce
- 13 people work in other

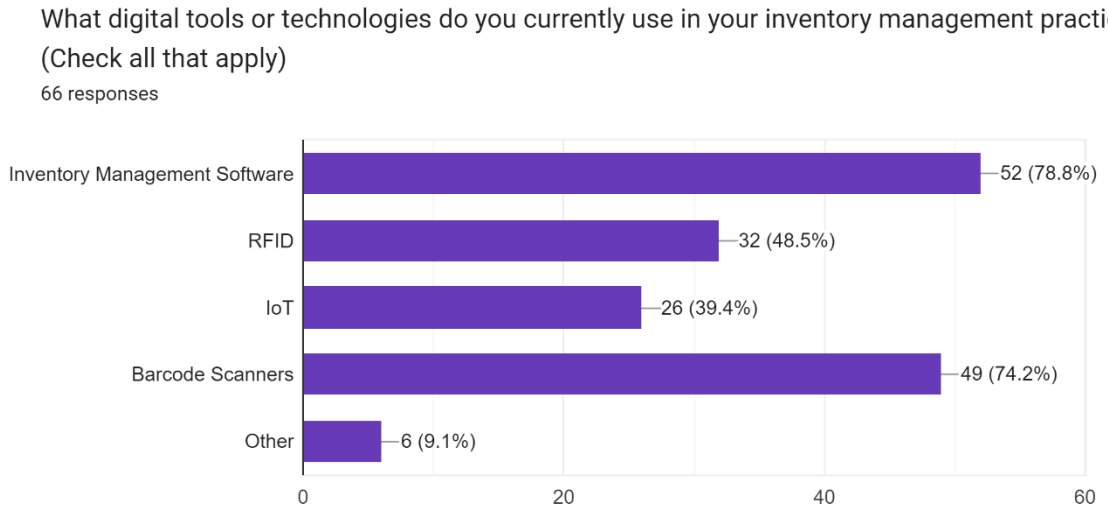


Level of Digitalization	Respond
Not digitalized at all	9
Sightly digitalized	22
Moderately digitalized	21
Highly digitalized	14

Interpretation: -

According to our survey current level of digitalization in inventory management practices are:

- 9 people was said that not digitalized at all.
- 22 people was said that sightly digitalized.
- 21 people was said that moderately digitalized.
- 14 people said that highly digitalized.

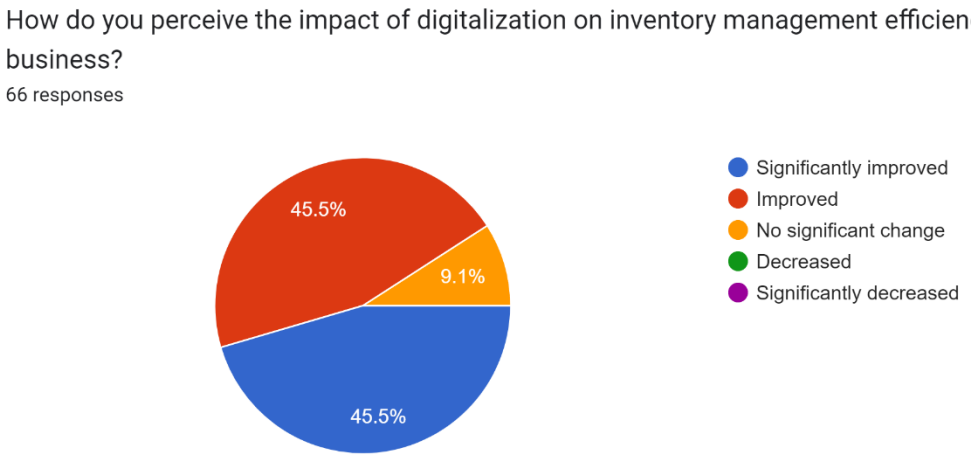


Tools & technology used	Respond
Inventory management software	52
RFID	32
LoT	26
Barcode scanners	49
other	6

Interpretation: -

According to our survey the digital tools or technologies people currently use in their inventory management practices are:

- 52 people use Inventory management software in their inventory management practices.
- 32 people said that they use RFID in their inventory management practices.
- 26 people said that they use IoT in their inventory management practices.
- 49 people said that they use Barcode scanner in their inventory management practices.
- 6 people said that they use any other tools or technique in their inventory management practices.

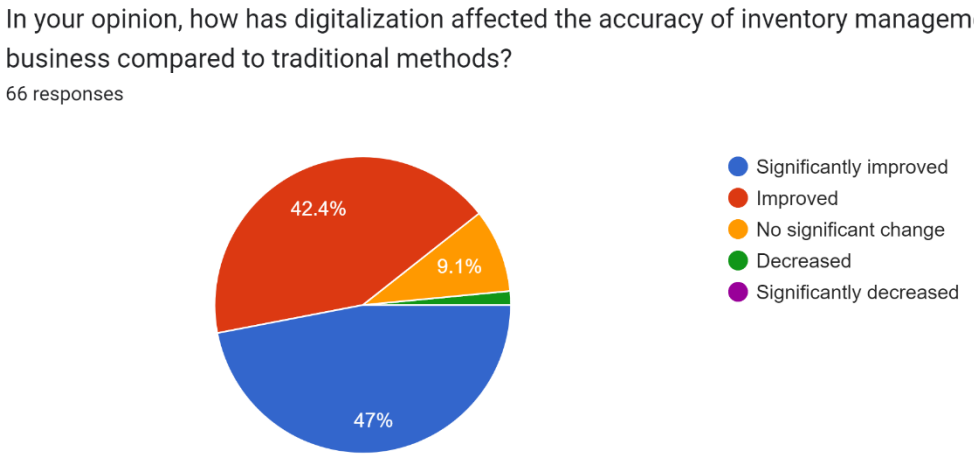


Impact of digitalization	Respond
Significantly improved	30
Improved	30
No Significantly change	6
Decreased	0
Significantly decreased	0

Interpretation: -

According to our survey, people perceive the impact of digitalization on inventory management efficiency in their business are:

- 30 people said that their business is significantly improved.
- 30 people said that their business is improved.
- 6 people said that there is no significantly change come in their business.



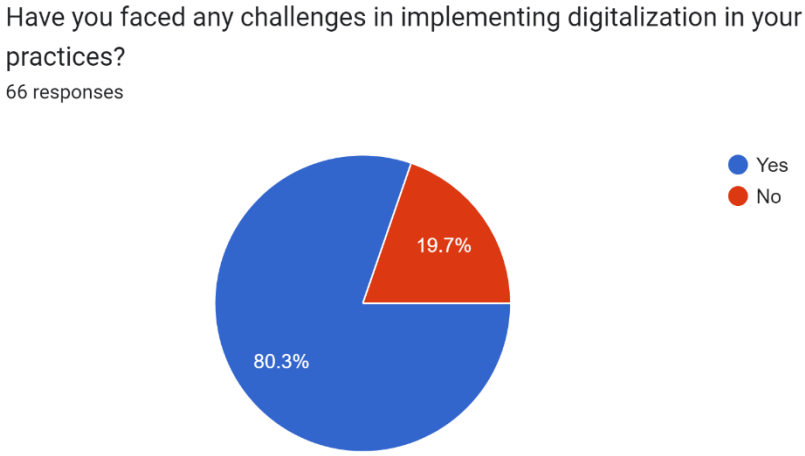
Digitalization affects the accuracy	Respond
Significantly improved	31
Improved	28
No Significantly change	6
Decreased	1

Significantly decreased	0

Interpretation: -

According to our survey, the digitalization affects the accuracy of inventory management in their business as compare to traditional methods are:

- 31 people said that their inventory management get significantly improved.
- 28 people said that their inventory management get improved.
- 6 people said that their there is no significant change comes in their inventory management.
- 1 people said that his inventory management decreased.

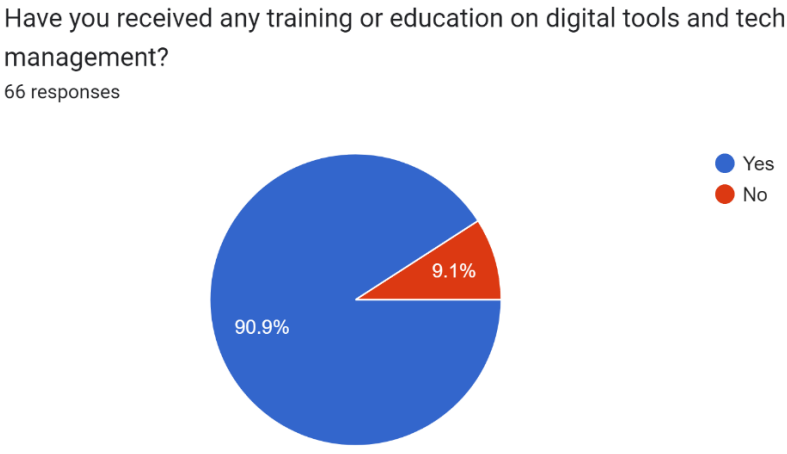


Challenges in implementing	Respond
Yes	53
No	13

Interpretation: -

According to our survey,

- 53 people said yes, that they faced challenges in implementing digitalization in their inventory management practices.
- 13 people said no, they don't face any challenges in implementing digitalization in their inventory management practices.

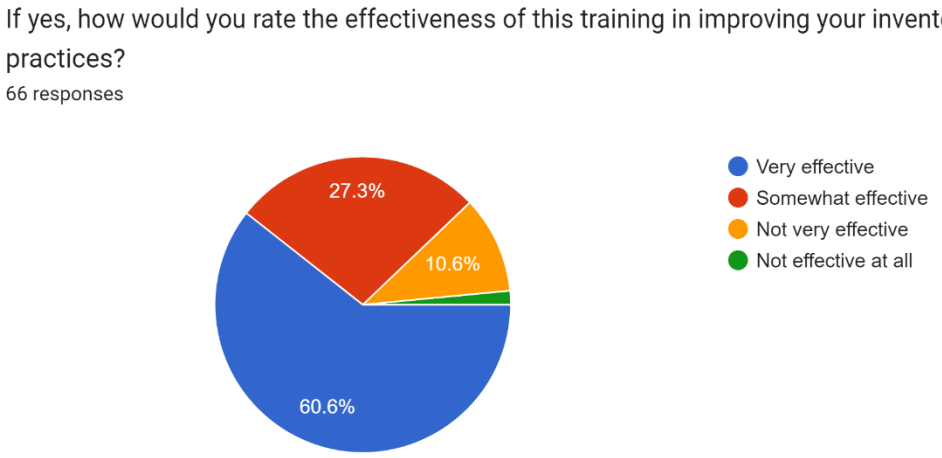


Received any training or education	Respond
Yes	60
No	6

Interpretation: -

According to our survey,

- 60 people said that they yes, they received any training or education on digital tools and technologies for inventory management.
- 6 people said no, they don't receive any training or education on digital tools and technology for inventory management.

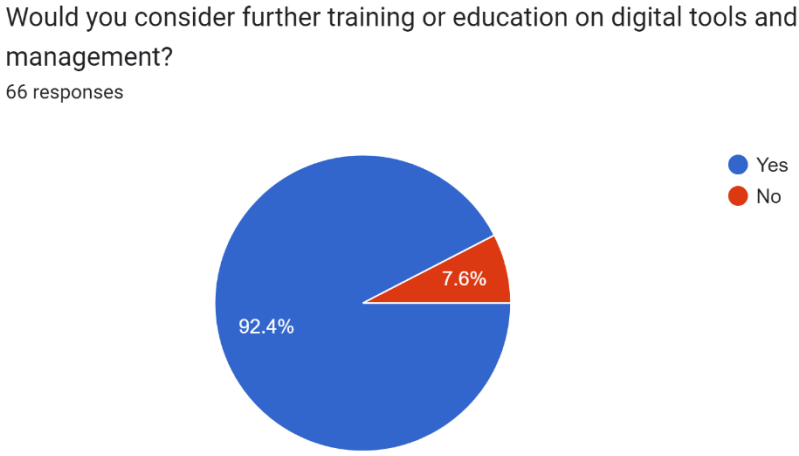


Improve your inventory management	Respond
Very effective	40
Somewhat effective	18
Not very effective	7
Not effective at all	1

Interpretation: -

According to our survey, people rate the effectiveness of this training in improving inventory management practices are as follow:

- 40 people said that it is very effective.
- 18 people said that somewhat effective.
- 7 people said that not very effective.
- 1 people said that not effective at all.

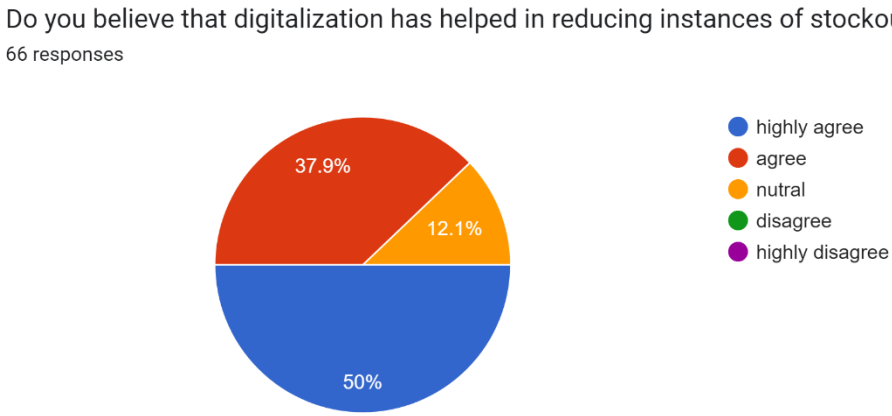


Consider further training or education	Respond
Yes	61
No	5

Interpretation: -

According to our survey, people response for further training or education on digital tools and technologies for inventory management are as follow:

- 61 people said yes, they consider further training or education on digital tools and technologies for inventory management.
- 5 people said no, they don't consider further training or education on digital tools and technologies for inventory management.

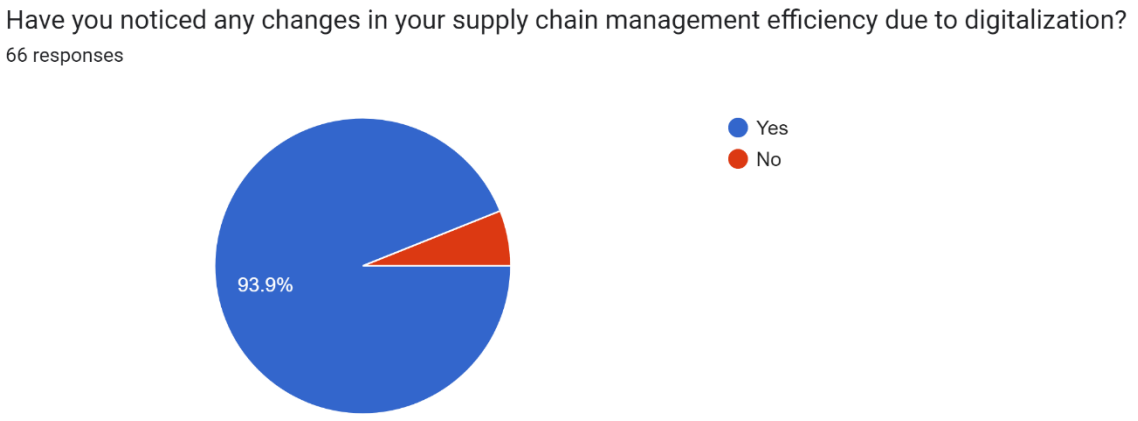


Digitalization helped in reducing stockouts or overstocking	Respond
Highly agree	33
Agree	25
Neutral	8
Disagree	0
Highly disagree	0

Interpretation: -

According to the survey, the people response that they believe digitalization has helped in reducing instances of stockouts or overstocking are:

- 33 people are highly agree that digitalization has helped in reducing instances of stockouts or overstocking.
- 25 people are agree that digitalization has helped in reducing instances of stockouts or overstocking.
- 8 people are neutral that digitalization has helped in reducing instances of stockouts or overstocking.

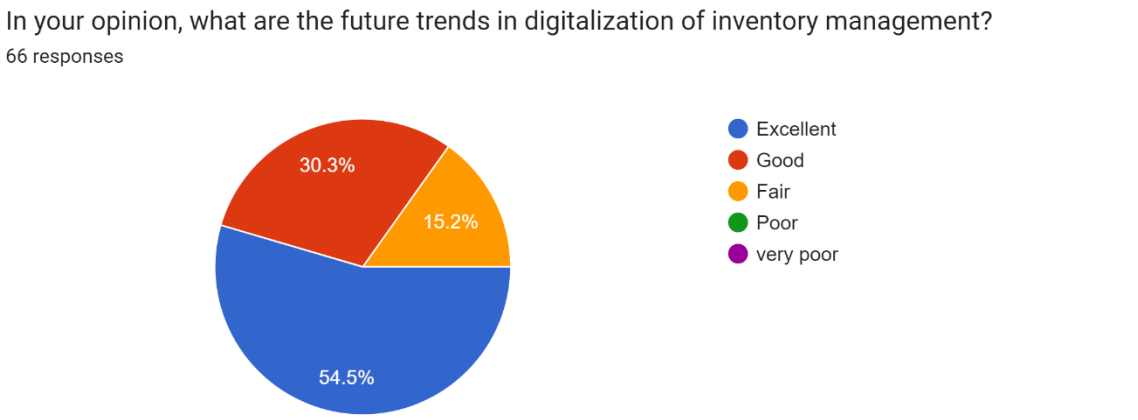


Change in SCM efficiency	Respond
Yes	62
No	4

Interpretation: -

According to our survey, the response of people that they noticed any change in their supply chain management efficiency due to digitalization are as follow:

- 62 people said yes, that they noticed change in their supply chain management efficiency due to digitalization.
- 4 people said no, that they don't notice any change in their supply chain management efficiency due to digitalization.



Future trends of digitalised inventory management	Respond
Excellent	36
Good	20
Fair	10
Poor	0
Very poor	0

Interpretation: -

According to our survey, the response of people for future trends in digitalization of inventory management are:

- 36 people said the future trends in digitalization of inventory management is Excellent.
- 20 people said the future trends in digitalization of inventory management is Good.
- 10 people said the future trends in digitalization of inventory management is Fair.

FINDINGS & RECOMMENDATIONS

Findings

On the basis of our research and analysis, the following key findings have been identified in the dissertation "Impact of Digitalization in Inventory Management: A Comparative Study between Traditional and E-commerce Business:

1. **Digitalisation Level:**

This suggests that there is not enough evidence to conclude that traditional businesses have a significantly different level of digitalization in inventory management practices compared to e-commerce businesses.

2. **Efficiently of Digitalisation:**

There is sufficient evidence to conclude that digitalization significantly improves inventory management efficiency in e-commerce businesses compared to traditional businesses.

3. **Challenges faced by Traditional Business:**

There is sufficient evidence to conclude that traditional brick-and-mortar businesses face more challenges in implementing digitalization in inventory management compared to e-commerce businesses.

4. **Need of Training and Education:**

There is sufficient evidence to conclude that providing training and education on digital tools and technologies is crucial for improving inventory management practices in both traditional and e-commerce businesses.

Recommendations

On the basis of the findings, the following recommendations and proposed to enhance the impact of digitalisation on inventory management:

1. **Enhance Digital Infrastructure:**

- For traditional business: upgrade the digital infrastructure by investment to support advanced inventory management systems.
- For E-commerce business: to maintain and improve the efficiency continuously invest in state-of-art digital tools and technology.

2. **Training and Education programs:**

- Workshops and seminars: Organising regularly workshops and seminars for the focus on the latest

digital tools and technologies for inventory management.

- Online courses: develop the online courses and certification programs that employees can take to enhance their digital skills.

3. **Support and Incentives:**

- Government and Industry Support: Seek government grants and industry incentives to support the digital transformation of inventory management practices, especially for small and medium-sized traditional businesses.
- Public-Private Partnerships: Encourage collaborations between government agencies, educational institutions, and private enterprises to provide resources and expertise for digitalization initiatives.

4. **Adopt Best Practices:**

- Benchmarking: Encourage businesses to benchmark their inventory management practices against industry leaders and adopt best practices. This can help identify gaps and areas for improvement.
- Continuous Improvement: Promote a culture of continuous improvement where businesses regularly review and update their digital strategies and processes.

5. **Address Resistance to Change:**

- Change Management: Implement effective change management strategies to address resistance to digitalization. This includes clear communication of benefits, involvement of employees in the transition process, and provision of necessary support.

CONCLUSION

The dissertation "Impact of Digitalization in Inventory Management: A Comparative Study Between Traditional and E-Commerce Business" provides valuable insights into the current state and challenges of digitalization in inventory management. While traditional businesses do not show significantly different levels of digitalization compared to e-commerce businesses, the latter clearly benefit more from digital advancements in terms of efficiency.

To bridge the gap, traditional businesses must overcome various challenges, including infrastructure and resistance to change. Providing comprehensive training and education, enhancing digital infrastructure, and seeking support from government and industry can significantly improve inventory management practices across both sectors. By adopting these recommendations, businesses can fully leverage the advantages of digitalization, leading to more efficient and effective inventory management.

ANNEXURE - 1

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ANNEXURE - 2

QUESTIONNAIRE

What is your age group?

18-25
26-35
36-45
46-55
56 and above

What is your gender?

Male
Female
other

What is your occupation?

Business owner
Manager
Employee
other

Which type of business do you work for?

Traditional brick and mortar
E-commerce
other

How would you rate the current level of digitalization in your inventory management practices?

Not digitalized at all
Slightly digitalized
Moderately digitalized
Highly digitalized

What digital tools or technologies do you currently use in your inventory management practices?

Inventory management software
RFID
LoT
Barcode Scanners
Other

How do you perceive the impact of digitalization on inventory management efficiency in your business?

Significantly improved
Improved
No significant change
Decreased
Significantly decreased

In your opinion, how has digitalization affected the accuracy of inventory management in your business compared to traditional methods?

Significantly improved
Improved
No significant change
Decreased
Significantly decreased

Have you faced any challenges in implementing digitalization in your inventory management practices?

Yes
No

Have you received any training or education on digital tools and technologies for inventory management?

Yes
No

If yes, how would you rate the effectiveness of this training in improving your inventory management practices?

Very effective
Somewhat effective
Not very effective
Not effective at all

Would you consider further training or education on digital tools and technologies for inventory management?

Yes
No

Do you believe that digitalization has helped in reducing instances of stockouts or overstocking?

Highly agree
Agree
Neutral
Disagree
Highly disagree

Have you noticed any changes in your supply chain management efficiency due to digitalization?

Yes
No

In your opinion, what are the future trends in digitalization of inventory management?

Excellent
Good
Fair
Poor
Very poor

Thank you for taking the time to complete this questionnaire. Your feedback is valuable to our research.