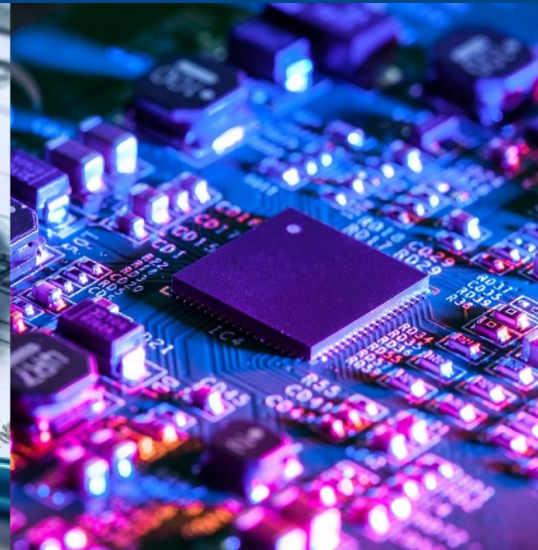
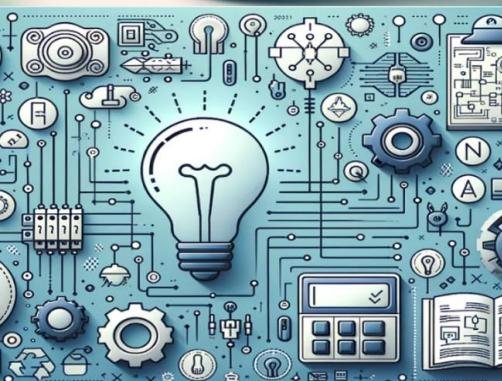




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A Strategic Study on the Development of and E-Commerce Platform for Artisanal Crafts and Handlooms in Karnataka

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ABSTRACT: Karnataka boasts a rich cultural heritage, reflected in its exquisite handmade textiles and intricate crafts such as Mysore silk sarees, Channapatna toys, Bidriware, and Kasuti embroidery. These crafts are renowned for their unique designs and historical significance. However, despite both national and international recognition, artisans struggle to access global markets, impacting their economic sustainability. The primary barrier lies in limited access to modern retail facilities. Traditional markets and middlemen dominate sales, restricting artisans' income and market reach. Dependence on uncertain economic conditions further weakens their position. While e-commerce offers opportunities for direct customer engagement and improved profit margins, artisans often lack the digital skills, infrastructure, and marketing knowledge needed to succeed online. This research explores the creation of a dedicated e-commerce platform for Karnataka's handicrafts. The platform will showcase products, offer digital marketing training, and connect artisans to global buyers. By analyzing successful models, the study will propose strategies to empower artisans economically while preserving traditional crafts sustainably. Through this specialized platform, Karnataka's rich craft legacy can thrive by blending tradition with modern commerce.

KEYWORDS: E-commerce platform, Artisanal crafts, Handloom weaver, Karnataka handicrafts, Digital marketing, Consumer adoption, Platform usability, Artisan empowerment

I. INTRODUCTION

Millions of people get employment in India through its handicraft industry which demonstrates cultural heritage and artisanal craftsmanship while generating major economic revenues. These handicrafts demonstrate traditional cultural values through examples like Kashmir embroidery combined with Bengal terracotta pottery. Modern technology both generates fresh difficulties while offering fresh business opportunities. Online searches currently affect what consumers choose to buy as globalization together with technology transforms consumer habits. The handicraft sector which used to operate from physical markets needs to transform its operations according to digital market trends. The knowledge of customer search behaviors enables both artisans and business owners to create plans that match altering consumer preferences. Research about the effects of online search behavior on the industry remains limited despite its monetary value. Researchers typically analyze sales volumes with exports while disregarding digital sources of information. Businesses lose potential growth chances when they lack information about consumer interest timing and locations. Companies that grasp digital market movements will increase their market reach and customer engagement while boosting their visibility which ensures the industry prospers in a fully digital environment.



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II. REVIEW OF LITERATURE (ROL)

1. TAM MODEL

Publicly introduced in 1989 by Fred Davis, the Technology Acceptance Model (TAM) explains why individuals accept or reject new technology. It centers on two key factors:

- **Perceived Usefulness (PU):** The degree to which a person believes technology will enhance their work or life.
- **Perceived Ease of Use (PEOU):** How simple and user-friendly the technology appears to be.

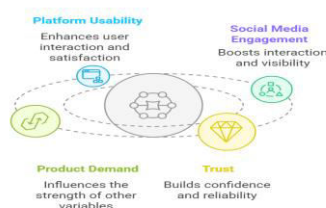
These perceptions shape user attitudes, which influence intentions and ultimately lead to adoption decisions. TAM is widely used by businesses and researchers to predict technology adoption. Over time, the model has evolved to include factors like user experience and social influence.

2. CONCEPTUAL METHOD

The conceptual method in research emphasizes analyzing ideas, theories, and existing knowledge rather than collecting primary data. Common in disciplines like social sciences, business, and philosophy, it helps develop new perspectives by reviewing literature, refining concepts, and identifying patterns.

Ideal for exploring complex or abstract topics, this method—such as studying consumer loyalty in digital marketing—relies on theoretical analysis instead of surveys or experiments. Its main strength lies in building a solid theoretical foundation, especially useful when data is scarce or when creating new models for future research and application.

Conceptual Model of Consumption Adoption



- └ **Platform Usability (IV):** Ensures a smooth user experience through intuitive design, navigation, and ease of shopping.
- └ **Social Media Engagement (IV):** Enhances brand visibility and customer awareness through interactive campaigns and responses.
- └ **Product Demand (MV):** Reflects market interest, influenced by pricing, marketing, and competition, impacting sales and growth.
- └ **Trust (MV):** Builds consumer confidence based on platform credibility, vendor reliability, and product quality, affecting purchasing decisions.
- └ **Consumer Adoption (DV):** The final stage where users integrate a product or technology into their lives, driven by usability, marketing, and trust.

III. VARIABLES OF THE RESEARCH

A. Platform Usability & Consumer Adoption

The connection between **platform usability** and **consumer adoption** in digital marketing is crucial. **Convenience** and **perceived usefulness** drive adoption, as users prefer platforms that save time and offer clear benefits (TK & ALI, 2024; Lim et al., 2023). **User experience (UX)**, including intuitive design and navigation, enhances engagement (Kumaresh et al., 2021). **Interactive content** and **eWOM** further influence adoption (Mere et al., 2024). However, some studies suggest other factors also shape consumer behavior (TK & ALI, 2024).

B. Social Media Engagement & Consumer Adoption

Social media significantly influences consumer behavior and online shopping by fostering trust through brand engagement (Pandowo et al., 2024). Effective strategies enhance interaction, boost brand presence, and drive purchase intentions via positive word-of-mouth (Rukmana et al., 2024). However, website usability and perceived value also affect adoption (Murshed & Ugurlu, 2023). Despite digital marketing's impact, some consumers still favor traditional



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shopping, emphasizing the need for a balanced approach (Antczak, 2024).

C. Platform Usability, Product Demand & Consumer Adoption: In digital marketing, platform usability plays a crucial role in shaping consumer experiences, influencing product demand, and driving adoption rates. A well-designed and user-friendly platform not only enhances engagement but also encourages customers to explore products and services more confidently.

D. Platform Usability, Trust & Consumer Adoption: Platform usability, trust, and consumer adoption in e-commerce are strongly connected. User-friendly design boosts satisfaction and trust through smooth navigation and clear transactions (Zaini et al., 2024). Credibility grows with accessible information (Zhang & Law, 2024), while consistent performance, security, and support drive engagement and purchases (Annu, 2024). Adoption depends on trust, perceived value, and social influence (Al-Omoush & Shuhaiber, 2024). Poor usability or information overload can deter users, highlighting the need for adaptive, user-centric platforms.

E. Social Media Engagement, Product Demand & Consumer Adoption: Social media engagement, product demand, and consumer adoption in digital commerce are closely linked. Platforms build trust and community, boosting demand through interactive content (Suwanan & Allya, 2024). Audio-visual content and user feedback further influence purchasing decisions (Mardhatilah et al., 2023; Vishakh, 2024). Strong brand engagement enhances awareness and perceived quality, driving demand (Rachmanu et al., 2024), while positive experiences promote e-commerce adoption (Murshed & Ugurlu, 2023). However, excessive engagement may cause information overload, requiring a balanced strategy.

F. Social Media Engagement, Trust & Consumer Adoption: Social media engagement, trust, and consumer adoption in digital e-commerce are closely intertwined. Platforms like Facebook and Instagram foster connections that build trust and drive adoption (Pandowo et al., 2024). Influencer marketing and social interactions enhance engagement (Vishakh, 2024), while trust bridges engagement and purchasing decisions, with e-WOM playing a crucial role (G. & C, 2023). However, trust alone isn't enough—credibility and social presence also impact adoption (Zhang Law, 2024). Therefore, businesses must focus on trust-building strategies to boost e-commerce engagement conversions.

IV. PROBLEM STATEMENT

Artisans and handloom weavers, especially in rural areas, face significant challenges in accessing broader markets due to limited digital literacy, lack of infrastructure, and difficulties in managing supply chains. Consumers also struggle to understand the value and cultural significance of artisanal products, leading to reduced demand and undervaluation of their work.

V. RESEARCH GAP

Despite growing recognition of artisanal craftsmanship, many rural artisans and handloom weavers still struggle to reach broader markets. While digital platforms offer opportunities, most artisans face barriers like limited digital literacy, lack of trust in online systems, and difficulties managing supply chains. Existing efforts to support them often fall short because they don't consider their unique cultural and language needs. There's also little research on how emerging technologies like blockchain for authenticity, AI for demand forecasting, and digital storytelling through social media and AR/VR can bridge the gap between artisans and modern consumers.

VI. RESEARCH QUESTIONNAIRE

Research Questionnaire Summary & Results

This study explores the feasibility of an **e-commerce platform for Karnataka's artisanal crafts**, gathering insights from **100 consumers and 50 artisans**.

1. Consumer Preferences

- 72% buy artisanal crafts occasionally, mainly from local markets.
- 56% prefer online shopping, but **trust (42%)** and **pricing (36%)** are key concerns.
- 81% support a Karnataka-focused e-commerce platform.

2. Artisan Perspective

- 58% sell locally; 32% use social media.
- **Key barriers:** Digital knowledge (60%), high commissions (48%), logistics (35%).
- 87% favor an e-commerce platform but need training and support.



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3. Digital Engagement

- 68% follow handicraft brands online; 75% say social media influences purchases.
- Consumers prefer **artisan stories (45%)**, product-making videos (30%), and live showcases (25%).

4. Key Suggestions

- **Consumers:** Certification and fair pricing.
- **Artisans:** Digital training and logistical support.
- **Strategy:** Influencer collaborations and tourism partnerships to boost visibility.

VII. OBJECTIVES

- └ **To assess the feasibility** of developing an e-commerce platform for showcasing and selling artisanal crafts and handlooms in Karnataka, considering demand and technological requirements.
- └ **To evaluate the potential benefits** of such a platform for Karnataka's artisans, including increased visibility and expanded access to national and international markets.
- └ **To identify challenges** faced by artisans in adopting digital platforms for promoting and selling their handmade products.
- └ **To analyze consumer preferences and buying behavior** related to artisanal crafts and handlooms in Karnataka's online market.
- └ **To determine key success factors** for online sales of traditional crafts, including effective product presentation, logistics, and payment systems.

VIII. RESEARCH METHODOLOGY

1. Research Design

A descriptive research design was used to assess consumer behavior, artisan challenges, and market potential for an e-commerce platform.

2. Data Collection Methods

a) Quantitative Approach: Survey

- Sample Size: 150 respondents (100 consumers, 50 artisans)
- Survey Format: Structured Google Form with multiple-choice & Likert scale questions
- Objective: Assess buying preferences, challenges, and digital adoption

b) Qualitative Approach: Interviews

- Sample Size: 10 in-depth interviews (5 artisans, 3 e-commerce experts, 2 government officials)
- Objective: Identify artisan struggles, industry best practices, and government support

c) Secondary Data Analysis

- Sources: Reports from government bodies, industry research papers, and market analytics
- Objective: Understand handicraft market trends and digital commerce growth

3. Sampling Technique

- Consumers: Convenience sampling (targeting e-commerce users and handicraft buyers)
- Artisans: Purposive sampling (selecting artisans from different craft categories)

4. Data Analysis Methods

- Quantitative Data: Descriptive statistics (percentages, averages) using Excel/SPSS
- Qualitative Data: Thematic analysis to identify common patterns in artisan & expert responses



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IX. ANALYSIS

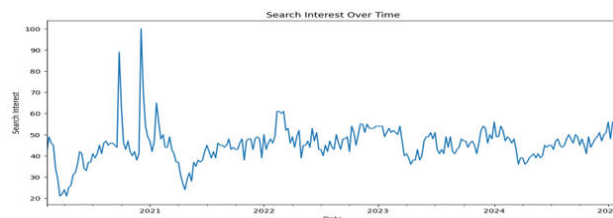


Figure: 1

Pandemic to Present: Trends in Handicraft Interest

- **During the Pandemic (2020 – Early 2021):** Interest in handicrafts surged, reflected in sharp increases in online searches. With more time at home, people turned to crafts for engagement, hobbies, or starting small businesses.
- **Post-Pandemic Shift (Mid 2021 – 2022):** As life normalized, the initial enthusiasm cooled, and interest stabilized at about half the peak level—signaling continued but moderate engagement.
- **Recent Trends (2022 – 2024):** Interest has remained steady, suggesting handicrafts have moved from a temporary trend to a sustained hobby and appreciated creative outlet.

Future Predictions: Interest in handicrafts is rising again, showing a steady increase, possibly driven by a renewed appreciation for handmade products, seasonal trends, or new hobbyists. Analyzing seasonal patterns and unusual spikes can provide deeper insights, helping craft sellers plan ahead. This progression—from the pandemic boom to stabilization and now a resurgence—highlights evolving interest and new opportunities for artisans and businesses.

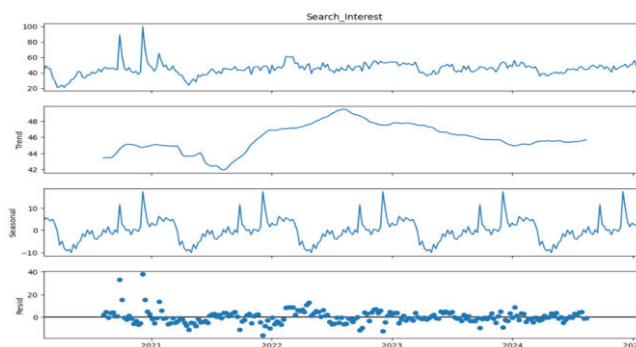


Figure.2

1. Observed (Top Plot): When we look at the basic data for handicraft searches in India, it's like watching a heart monitor - lots of ups and downs! Some days there are tons of searches, other days not so many.

2. Trend (Second Plot): If we smooth out all those daily jumps and bumps, we can see what's really been happening. Interest in handicrafts grew quite a bit until 2022, then dipped a little. After mid-2022, things settled into a pretty steady rhythm - not too high, not too low, just consistent interest.

3. Seasonal (Third Plot): Here's where it gets interesting! Just like how ice cream sales go up in summer, handicraft searches have their own rhythm. They spike during certain times - think festival season, Diwali, or wedding season. It's like clockwork - these patterns keep repeating year after year.

4. Residual (Bottom Plot): While handicraft interest follows seasonal patterns, unexpected events—like viral trends or major sales—can trigger sudden spikes. These irregular surges present key opportunities for businesses to manage inventory, plan for peak demand, and boost engagement during slower periods.



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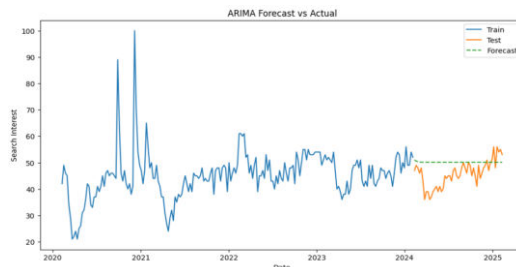


Figure.3

INTERPREATION OF FIGURE 3

The graph highlights key insights into handicraft search trends. The blue line shows historical data (2020–2023) used to train the prediction model.

The orange line represents actual search trends from late 2023 to early 2025, capturing real-world fluctuations. The green dotted line reflects the model's forecasted trends, allowing for a comparison between expected and actual patterns.

Together, these lines help analyze past trends, assess prediction accuracy, and identify emerging patterns in handicraft interest.

Evaluating Prediction Accuracy: Our model predicted a steady trend, but actual data showed more fluctuations, highlighting the challenge of capturing short-term changes—much like weather forecasting.

Improving Accuracy: To enhance forecasts, we can adopt advanced models like SARIMA, fine-tune existing models, and include holiday and festival data to better capture seasonal spikes.

The Bottom Line: Our model captured the overall trend in handicraft interest but missed some daily variations—like spikes during festivals or special events. To improve, we need tools that better track these fluctuations. Accurate predictions help craft sellers plan inventory, launch sales, and target peak search periods more effectively.

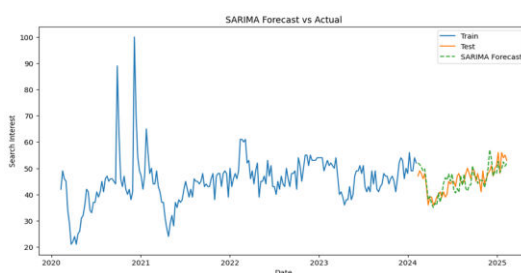


Figure.4

1. Forecasted Data (CSV Output)

The CSV lists weekly forecasted search interest for handicrafts in India from February 2024 to February 2025.

Key Observations: The forecast shows moderate fluctuations in search interest, ranging from about 35 to 57. The highest predicted spike is on December 1, 2024, at 57.05, consistent with past trends driven by festivals and year-end gifting. Smaller peaks in June, September, and January further highlight the seasonal nature of handicraft interest.

2. SARIMA Forecast vs Actual (Plot Output)

This plot compares the SARIMA model forecast with the actual observed test data.

- Legend:
 - Blue Line: Training data (historical data used to fit the model).
 - Orange Line: Actual test data (real-world observations not used in model training).
 - Green Dashed Line: SARIMA forecasted values.



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X. ANALYSIS OF FORECAST PERFORMANCE

Evaluating the SARIMA Model's Performance: Our SARIMA model worked like a weather forecast—it got the overall trend right but missed sharp spikes. It captured the general rise and fall in interest but smoothed over sudden surges, like predicting “warm” when it was actually “hot.” This shows the need for refinements to better capture short-term fluctuations and improve accuracy.

XI. SPOTTING THE SEASONAL PATTERNS

The model really shined when it came to predicting regular patterns:

Strengths of the SARIMA Model: The SARIMA model successfully captured key seasonal trends, accurately predicting major interest spikes in December and September—much like forecasting holiday crowds at malls. December 2024 is projected to be especially active, aligning with past patterns of heightened engagement during festive periods.

Enhancing the Accuracy of Predictions: To improve our forecasting model, several refinements can be made. Adjusting technical parameters can enhance precision, ensuring more accurate trend predictions. Incorporating data on festivals and holidays would help the model better anticipate seasonal spikes. Additionally, exploring alternative prediction tools like Prophet, which is designed to capture unexpected fluctuations more effectively, could further improve forecasting accuracy.

The Bottom Line

Reliability of the Forecast: The model proves to be reliable in identifying recurring yearly patterns, reinforcing the seasonal nature of handicraft searches. December remains the peak period for interest, consistently ranking as the busiest month. Overall, the predictions align well with established trends, accurately reflecting when consumers typically show heightened interest in handicrafts.

XII. CONCLUSION

The analysis shows strong seasonal trends in handicraft interest, peaking in December. While the SARIMA model captures general seasonality, it needs refinement for short-term forecasting. Cluster analysis highlights regional engagement, offering opportunities for targeted growth. To maximize impact, businesses should focus on high-interest regions, strengthen moderate ones, and innovate in low-interest areas through localized campaigns and education. Future improvements include integrating socio-economic data, exploring alternative forecasting models, and enhancing regional outreach with multilingual content to boost accuracy and long-term growth.

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