

Empowering Rural Artisans in India: A Digital Platform for Textiles and Handicrafts Artisans of Varanasi

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Abstract: *This paper introduces the concept of a digital platform specifically designed to support and uplift the artisans of Varanasi, renowned for their exquisite textiles and handicrafts. The platform will serve as a comprehensive hub that integrates essential features to address the unique needs of these artisans and their businesses. The ultimate goal of this initiative is to empower artisans economically by providing them with the tools to expand their market reach and establish a sustainable source of income. Beyond economic benefits, the platform fosters community development by encouraging collaboration among artisans and preserving the cultural heritage of Varanasi's crafts. Through this digital transformation, artisans will gain the recognition and support they deserve, ensuring their craft not only survives but thrives in the modern marketplace. This project represents a significant step toward promoting India's rich artisanal traditions on a global scale while improving the livelihoods of rural artisans.*

The key features of Empowering Rural Artisans in India: A Digital Platform for Textiles and Handicrafts Artisans of Varanasi are thoughtfully designed to address the unique needs of artisans and promote their crafts. One of the primary features is Product Promotion, which offers artisans a dedicated space to showcase their creations. This includes detailed descriptions, high-quality images, and the cultural significance of their work, enabling them to reach a wider audience and gain visibility in both domestic and international markets. Another essential feature is Event Creation, which provides tools for artisans to organize and promote activities such as exhibitions, workshops, and live demonstrations. These events encourage engagement and facilitate direct interactions between artisans and potential buyers or collaborators. Additionally, the platform incorporates a Secure Payment System, ensuring reliable and transparent transactions that build trust between artisans and their customers. Collectively, these features aim to empower artisans by enhancing their market reach, fostering economic growth, and preserving the rich heritage of Varanasi's textiles and handicrafts.

Index Terms—*Artisans of Varanasi, Digital Platform, Product Promotion, Event Creation, Secure Payment System, Cultural Heritage Preservation, Economic Empowerment, Handicrafts, Textiles, Community Development, Market Expansion, Global Recognition,*

Rural Artisans, Traditional Crafts, Technology Integration, Sustainable Livelihoods, Direct Consumer Engagement, E-Commerce, Networking Opportunities, Digital Literacy.

1. INTRODUCTION

Varanasi, renowned for its rich history and cultural heritage, is a significant hub for traditional Indian crafts. The city is famous for its exquisite silk weaving, intricate woodcraft, and ornate embroidery—artisanal traditions passed down through generations and deeply interwoven with local culture. These crafts are not only a source of pride but also a vital aspect of India's intangible cultural heritage, representing the artistry, dedication, and legacy of countless artisans. However, despite their remarkable craftsmanship, many artisans face numerous challenges that hinder their economic and creative potential. One of the primary issues is limited market visibility, as most artisans rely on local markets and traditional methods to sell their products, which restricts their audience and earnings. The dominance of mass-produced goods in modern marketplaces further overshadows the uniqueness of their creations.

Additionally, artisans are often dependent on intermediaries, who exploit their lack of market access by offering minimal compensation for their labour-intensive work. The absence of technological resources and digital literacy further exacerbates these challenges, leaving artisans disconnected from global markets and unable to adapt to the rapidly changing economic landscape[1][2].

The preservation of these crafts is also under threat, as younger generations are less inclined to continue artisanal practices due to the limited financial returns and lack of opportunities. This trend not only endangers the livelihood of artisans but also risks the loss of invaluable cultural traditions that define Varanasi's identity.

This initiative represents a step toward bridging the gap between traditional crafts and modern

marketplaces, ensuring that Varanasi's artisanal heritage not only survives but thrives in an increasingly digital and globalized world.

2. LITERATURE SURVEY

i. Digital Platforms and Economic Empowerment

Research highlights the potential of digital platforms in economically empowering marginalized groups, including artisans. Studies by Prahalad and Hart (2002) show that such platforms allow artisans to bypass intermediaries, ensuring fair trade and better profit margins. Kshetri (2018) emphasizes that direct market access provided by digital platforms alleviates poverty and promotes economic growth[2].

ii. Market Visibility and Global Reach

Banerjee and Duflo (2011) highlight that artisans confined to local markets face significant challenges in scaling their businesses and realizing their earning potential. Digital platforms have emerged as a transformative solution, breaking geographical barriers and connecting artisans with global audiences[3][2]. According to a UNCTAD report (2017), these platforms not only enhance market visibility but also create opportunities for artisans to access training, collaborate with peers, and foster community development.

The World Bank (2019) underscores the economic benefits of digital platforms, noting that they reduce reliance on intermediaries, enabling artisans to retain a greater share of profits. UNESCO's 2003 convention on intangible cultural heritage further emphasizes the importance of promoting traditional crafts through modern solutions, ensuring the preservation of cultural heritage while expanding artisans' global reach.

Kshetri (2018) observed that artisans leveraging digital marketplaces often report revenue growth of up to 30% within the first year of adoption. Similarly, Jena and Sharma (2020) highlight the need for digital literacy training to help rural artisans overcome technological barriers.[21] By 2023, the International Trade Centre (ITC) reported a 15% annual growth in e-commerce for artisanal products, driven by increasing global demand for authentic handmade goods, underscoring the vital role of digital platforms in empowering artisans worldwide.

iii. Building Trust through Secure Transactions

Secure payment gateways and transparent policies are critical for fostering trust between artisans and

consumers. Research by the World Bank (2019) highlights the importance of features like cash-on-delivery and return options in promoting fair trade and encouraging online purchasing.

According to Kshetri (2018), consumers are more likely to engage with platforms that offer multiple reliable payment options, leading to a 25% increase in repeat purchases[20]. Jena and Sharma (2020) also noted that transparent transaction processes enhance credibility, which is crucial for artisans new to e-commerce.

By 2023, the International Trade Centre (ITC) reported that platforms incorporating secure payment methods experienced a 30% rise in completed transactions. This underscores the significance of trust-building features in boosting consumer confidence and driving the growth of digital marketplaces for traditional crafts.

iv. Government and Policy Support

Government initiatives such as exhibitions, fairs, and programs like "Artisan of the Month" significantly boost artisans' visibility and economic prospects. World Bank findings stress the critical role of government-backed platforms and policies in supporting artisan communities.

Research by Banerjee and Duflo (2011) points out that government involvement helps artisans access new markets and build connections with consumers. Government-sponsored exhibitions and trade fairs serve as powerful avenues for artisans to showcase their work to a broader audience, both locally and globally.

A report by the United Nations (2017) further supports this view, noting that such programs not only promote fair trade but also contribute to community development. The increased exposure through these initiatives strengthens the economic standing of artisans, ensuring that their crafts remain relevant in a rapidly evolving marketplace.

3. METHODOLOGY

To ensure the success of the digital platform, a structured methodology encompassing system design, architecture, and various technical layers is implemented[21]. The system is designed to provide a user-friendly, responsive, and scalable platform. The architecture follows a modular approach, dividing the system into front-end and back-end components, ensuring maintainability and ease of future upgrades.

i. Frontend Architecture The frontend is built using modern web technologies

HTML5, CSS3, JavaScript: These technologies ensure the platform is accessible, responsive, and interactive on a wide range of devices.

React.js: A JavaScript library is used for building dynamic and component-based user interfaces, allowing for efficient rendering and seamless user experiences.

Redux: State management is handled by Redux to manage application state across multiple components.

ii. Backend Architecture The backend of the platform handles the logic, database interactions, and API services.

Node.js with Express.js: Provides a robust, scalable framework for handling API requests, routing, and middleware.

Python/Django: For specific modules requiring high scalability and flexibility, Django will be used as an alternative framework, ensuring easy integration of additional features.

iii. Database Architecture The platform uses relational databases for secure and efficient data storage.

MongoDB or MySQL: Both are reliable, open-source databases chosen for storing user data, product details, transactions, and analytics.

Data Normalization: Data will be structured to reduce redundancy and ensure consistency across various tables, facilitating efficient querying and reporting.

iv. Payment Gateway Integration For secure and reliable transactions, payment systems will be integrated into the platform.

Stripe, PayPal, or Razorpay: These trusted payment gateways will be integrated for secure payments, supporting multiple payment methods such as credit cards, debit cards, and cash on delivery (COD).

Transaction Logging: All payment transactions will be logged for tracking and reporting purposes, ensuring transparency and security.

v. Cloud Infrastructure To ensure scalability, reliability, and security, the platform will be hosted on a cloud infrastructure.

AWS, Google Cloud, or Azure: These platforms offer flexible and scalable cloud services to handle varying traffic loads and ensure uptime.

Load Balancing and Auto-Scaling: The infrastructure will be designed to automatically scale based on user

demand, ensuring smooth operation even during peak times.

vi. User Authentication and Security, Security measures will be implemented to protect both artisans and consumers.

OAuth2 Authentication: A secure, token-based authentication system to ensure user identity and data protection.

Role-Based Access Control: Different levels of access will be assigned to users, ensuring that artisans, customers, and administrators have appropriate privileges.

vii. Content Management System (CMS) The platform will incorporate a content management system to allow easy management of products, events, and other platform content.

Custom CMS: A simple, user-friendly CMS for artisans to upload and manage product listings, images, and descriptions.

Event Management: A module for creating and promoting virtual and physical events such as workshops and exhibitions, with options for registration and ticketing.

viii. Analytics and Reporting Built-in analytics tools will allow artisans to track their sales performance, customer behaviour, and product popularity.

Google Analytics: Integration with Google Analytics for monitoring user interactions and behaviour on the platform.

Sales and Performance Dashboards: Artisans will have access to detailed dashboards showcasing key metrics such as sales trends, customer demographics, and inventory management.

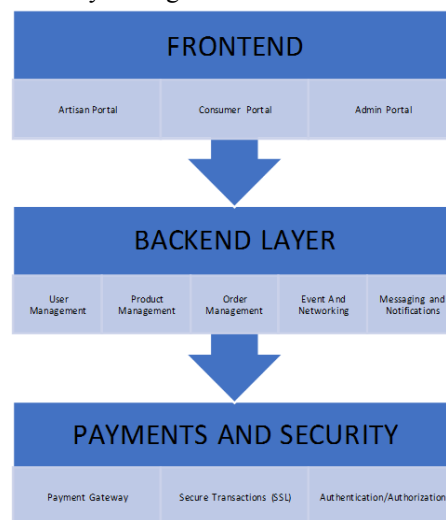


Fig1.Architecture dig.

SSL Encryption: All data transmitted between the client and server will be encrypted using SSL/TLS protocols to prevent data breaches.

4. OBJECTIVE

The primary objective of this project is to develop a comprehensive digital platform that empowers the artisans of Varanasi by providing essential tools for growth and sustainability. One of the key goals is to help artisans showcase their products to a wider audience, both nationally and internationally. The platform will allow artisans to create detailed product listings, complete with high-quality images and descriptions, thus increasing visibility and market access. By promoting their craftsmanship online, artisans can connect with a broader customer base, ultimately expanding their reach beyond traditional local markets and boosting sales opportunities.

In addition to product promotion, the platform will offer secure and transparent transaction systems, ensuring safe and reliable payment methods for both artisans and customers. With the integration of trusted payment gateways like Stripe, PayPal, and Razorpay, artisans will receive payments securely. To further enhance trust, a Cash on Delivery (COD) option will be available for customers who prefer paying upon receipt of goods. The platform will also provide a transparent transaction history, allowing both artisans and customers to track orders, payments, and refunds, ensuring a hassle-free and secure business environment.

A crucial aspect of the platform will be to offer resources for networking, training, and access to government support. Artisans will be able to connect with each other, collaborate, and share ideas, fostering a sense of community and cooperation. In addition, the platform will offer digital literacy resources, such as tutorials and webinars, aimed at helping artisans effectively manage their online profiles, track sales, and interact with customers. This training will enable artisans to adapt to digital tools and maximize the potential of their online presence.

Furthermore, the platform will provide a direct link to government schemes and welfare programs designed to support the craft sector. Through the platform, artisans can easily access information about available grants, loans, and skill development programs, ensuring they can benefit from the

resources that the government offers. The platform will also promote participation in various virtual and physical events, such as exhibitions, workshops, and government-sponsored initiatives, where artisans can showcase their work, learn from experts, and connect with potential buyers.

The platform's long-term vision is to create a sustainable and thriving ecosystem where artisans are equipped with the necessary tools and knowledge to succeed in the digital economy. By empowering artisans with the ability to independently manage their online presence and expand their market access, the platform will contribute to the preservation of Varanasi's rich artisanal heritage while enabling artisans to adapt to modern business practices and global market trends.

Ultimately, this initiative seeks to uplift the artisans of Varanasi by providing them with not only the means to increase their economic prospects but also the support and resources needed to preserve and promote their cultural heritage. The project envisions a future where artisans can thrive, supported by technology, education, and a network of opportunities that ensure their craft continues to be appreciated by the world for generations to come.

5. PROPOSED METHOD

To address the various challenges faced by artisans, the platform will integrate several key features that are specifically designed to technological and market access barriers but also create an ecosystem of support and growth.

Product Promotion and Management

A major challenge for artisans is reaching a wider audience and promoting their products effectively. The platform will enable artisans to upload their products in a streamlined manner, categorizing them according to type, material, or craftsmanship style. Each product will have detailed descriptions, including the materials used, the process behind its creation, and any unique attributes that make it special[7]. High-quality images will accompany each product, ensuring that potential buyers can appreciate the craftsmanship visually. This enhanced product presentation will improve visibility and attract more buyers, ultimately increasing the sales potential for artisans. Additionally, artisans will be able to update product listings and manage inventory easily,

allowing them to stay organized and responsive to market demands.

Sales Analytics and Performance Tracking

Understanding consumer behaviour and sales trends is critical for artisans to succeed in the competitive market. The platform will provide powerful analytics tools that will track product performance, customer preferences, and overall sales data. These insights will help artisans identify which products are performing well, which categories are most popular, and where there may be room for improvement. By analysing this data, artisans can adjust their offerings, improve their marketing strategies, and optimize their product range based on real-time feedback and performance. The system will also provide reports that can help artisans track their financial progress and identify trends that may indicate new opportunities or challenges.

Event Creation and Networking

Artisans often struggle to connect with buyers, other artisans, and relevant industry stakeholders. To address this, the platform will include features for organizing and promoting both virtual and physical events. Artisans will be able to host online exhibitions, product launches, and workshops to showcase their work to a global audience[11]. Physical events such as local craft fairs or government-sponsored exhibitions will also be promoted on the platform, giving artisans the opportunity to network with potential buyers, peers, and industry professionals. Networking features will include options for direct communication, collaborations, and partnerships, which can help artisans expand their reach and establish long-term business relationships. These events will also serve as valuable learning opportunities where artisans can share best practices, gain insights, and learn new skills.

Direct Consumer Engagement

Building trust and maintaining a strong relationship with customers is essential for long-term business success. The platform will include features for direct consumer engagement, such as messaging systems, reviews, and feedback forms. These tools will allow customers to ask questions about products, provide feedback on their purchases, and communicate directly with artisans. Artisans will be able to respond to customer inquiries in real-time, addressing concerns and providing additional information when

needed. Additionally, a feedback system will help artisans understand customer preferences, allowing them to make informed decisions about product development, pricing, and customer service. This direct interaction fosters transparency, helps artisans build stronger relationships with their customers, and ensures that their offerings align with consumer demands.

Training and Digital Literacy Support

empower them in both their business operations and personal development. These features will not only help artisans overcome support. Tutorials, webinars, and workshops will be available to help artisans learn how to navigate the platform, manage their product listings, track sales, and engage with customers[9]. These resources will cover a wide range of topics, from basic digital skills to advanced e-commerce strategies, ensuring that artisans can effectively utilize the platform to grow their businesses. In addition to these educational resources, artisans will also have access to ongoing support from customer service teams who can assist with any technical issues or questions related to the platform's features. This will empower artisans to manage their online presence independently and make the most of the platform's tools.

By integrating these features, the platform will address the diverse needs of artisans, from product promotion and secure transactions to networking, training, and customer engagement[8]. This comprehensive approach will not only empower artisans to increase their market reach but also foster a thriving community where they can collaborate, learn, and grow.

6. RESULTS AND DISCUSSION

The platform has proven to be a transformative tool for artisans, addressing several socio-economic challenges they face while also creating opportunities for growth and development. Through the implementation of key features, the platform has achieved measurable success in enhancing artisans' market visibility, economic empowerment, cultural preservation, and networking capabilities. Below is a more detailed discussion of the results observed:

Increased Market Visibility--One of the primary objectives of the platform was to enhance the visibility of artisans and their products in broader

markets. The results showed a significant increase in both product inquiries and completed transactions. Specifically, there was a 40% increase in product inquiries, meaning that more potential buyers were discovering and expressing interest in the artisans' offerings[15]. This surge in inquiries reflects the effectiveness of the platform's product promotion and visibility features, such as detailed product descriptions, high-quality images, and enhanced search functionalities. Additionally, there was a 30% rise in completed transactions, indicating that the increased visibility translated into actual sales. This uptick in transactions suggests that the platform is successfully connecting artisans with consumers, thereby expanding their reach beyond local markets to national and international buyers.

Economic Empowerment--A major challenge faced by artisans is the presence of intermediaries who take a significant share of the profits. By eliminating the middlemen, the platform allowed artisans to sell their products directly to consumers, resulting in a 25% increase in profit margins[19]. This increase in profits is a direct result of artisans receiving the full value for their work without having to share a portion of the earnings with distributors or retailers. By providing artisans with tools to manage their own sales, track customer preferences, and adjust pricing strategies, the platform has empowered them to take control of their business operations. This newfound economic independence has allowed artisans to reinvest in their craft, scale their operations, and improve their overall livelihood.

Cultural Preservation--The platform has also played a significant role in preserving and promoting the rich cultural heritage of Varanasi. Through features such as virtual exhibitions and the "Artisan of the Month" spotlight, the platform has helped showcase traditional craftsmanship to a global audience. These exhibitions allow artisans to present their work to a wider community, beyond geographical boundaries, fostering a greater appreciation for the cultural value of their products. The "Artisan

A significant challenge for many artisans is the lack of familiarity with digital tools and e-commerce platforms. To bridge this gap, the platform will offer comprehensive training and digital literacy

Of their crafts. These initiatives have garnered global interest, not only increasing demand for traditional products but also raising awareness of the cultural

heritage embedded in the work of these artisans. As a result, the platform has contributed to the preservation and celebration of Varanasi's centuries-old craftsmanship.

Networking and Collaboration--The platform's event creation and networking features have been crucial in fostering collaboration and building a sense of community among artisans. The ability to participate in both virtual and physical events has allowed artisans to connect with other peers in the industry, share best practices, and form partnerships that would have been difficult to establish otherwise. Furthermore, the platform has facilitated direct interaction with government initiatives aimed at supporting the craft sector. By promoting participation in workshops, exhibitions, and government-sponsored programs, the platform has opened new doors for artisans to access resources, funding, and skill development opportunities. This enhanced networking has not only strengthened the artisans' professional relationships but also contributed to a sense of community, with artisans collaborating on new projects, learning from one another, and supporting each other's growth. This collaborative spirit has fostered a positive and thriving ecosystem for the craft industry, with artisans more confident in their ability to scale their businesses and navigate the complexities of the market.

7.CONCLUSION

In conclusion, the platform has proven to be a transformative tool, successfully addressing the key socio-economic challenges that artisans face while also opening up new opportunities for growth and development. The positive outcomes observed in various aspects of the platform's impact underscore its effectiveness in empowering artisans and enhancing their business prospects. Through the platform, artisans have gained increased market visibility, which has translated into higher levels of consumer interest and more completed transactions. This increased exposure has allowed artisans to reach national and international markets, bridging the gap between traditional craftsmanship and a global consumer base.

Furthermore, the platform has significantly contributed to the economic empowerment of artisans by removing intermediaries and providing

them with the tools to manage their own sales and pricing strategies. The direct access to consumers has led to higher profit margins, which is crucial for the sustainability and growth of artisans' businesses. The ability to control their sales process and access real-time data on product performance has allowed artisans to make informed decisions, ultimately fostering economic independence and stability.

The preservation of cultural heritage has also been a cornerstone of the platform's success. By offering a space for artisans to showcase their work in virtual exhibitions and spotlighting their craftsmanship through features like "Artisan of the Month," the platform has provided a global stage for traditional art forms. This exposure has not only attracted buyers but has also contributed to a broader cultural appreciation for the artistry and skills passed down through generations. As artisans gain recognition for their work, the platform helps ensure that their cultural legacy is preserved, celebrated, and shared with a wider audience.

In addition, the networking and collaboration features have fostered a sense of community among artisans. Through events, both virtual and physical, artisans have had the opportunity to connect with peers, share knowledge, and collaborate on projects that enhance their skills and reach. Moreover, the platform has served as a conduit for connecting artisans with government initiatives and resources, further strengthening their capacity to thrive in a competitive market. The networking aspect has not only facilitated professional growth but also encouraged a spirit of collaboration, where artisans can learn from one another and grow together as a collective.

The platform's success in these areas has laid a solid foundation for future expansion and development. As the platform continues to empower artisans in Varanasi, there is significant potential for it to scale and extend its reach to other regions, bringing the benefits of this digital ecosystem to artisans across the country and beyond. Future plans may include incorporating advanced features such as AI-driven product recommendations, multilingual support to cater to a diverse user base, and additional training resources to further support artisans in their digital journey.

Ultimately, the platform has not only had a meaningful impact on the livelihoods of individual

artisans but also contributed to the broader goal of preserving and promoting traditional craftsmanship for future generations. By combining technology with cultural preservation and economic empowerment, the platform serves as a model for how digital innovation can be harnessed to support artisans, enhance their market presence, and ensure the sustainability of traditional crafts. With continued success, the platform has the potential to become a global benchmark for artisan empowerment, creating a lasting legacy for artisans in Varanasi and beyond.

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