

AI-Curated Artisan Marketplace (AI-CAM)

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Abstract

The AI-Curated Artisan Marketplace (AI-CAM) is an innovative platform designed specifically for the Indian market. It links regional artists with customers throughout India by employing advanced AI-driven recommendation and organisation algorithms. The platform addresses the difficulties small-scale Indian artisans encounter in marketing and selling their distinctive handcrafted goods by providing an easy-to-use interface for listing items and utilising artificial intelligence (AI) to improve product discovery for customers. AI-CAM seeks to increase customer engagement by personalising the buying experience with AI-driven product recommendations based on user preferences and browsing habits. To further accelerate transactions, the site incorporates user-friendly payment and delivery alternatives. In addition to assisting makers in expanding their market reach, AI-CAM hopes to provide customers with a carefully chosen assortment of distinctive, premium handmade goods, thereby promoting a flourishing handicrafts industry in India.

1. Problem Statement

It is challenging for Indian craftsmen and artisans to reach a wide audience since they sometimes lack sufficient online presence and marketing tools. While the market for unique, handcrafted goods is growing, buyers find it difficult to locate these items in the deluge of mass-produced goods from well-known brands. In order to solve this problem, the AI-Curated Artisan Marketplace (AI-CAM) uses artificial intelligence (AI) to curate and present artisan goods, giving them a reachable platform to interact with a wider range of customers in India and abroad.

2. Assessment

• Artisans:

1. **Connecting global market easily:** Require an affordable method for advertising and selling their products online.
2. **Purchasing Raw Materials:** They need a dependable way to get in touch with other regional craftspeople or vendors of high-quality raw materials.
3. **Enhancement of Product Quality:** Having access to high-quality raw materials is necessary to produce handcrafted goods that are comparable with mass-produced ready-mades items by known brands to a large audience of customers.

- **Consumers:**

1. **Desire for Outstanding, Handmade Products that Stand Out:** Consumers are looking for exceptional handmade products that differentiate themselves from mass-produced goods.
2. **Difficulties in Finding Products:** With so many generic products available online, customers frequently struggle to find these distinctive handmade items.
3. **Trust Issues:** Handmade goods from regional artisans are generally not trusted for their durability or quality. Customers are concerned about the validity of refund policies in the event that the product is harmed in travel or packaging since the artisans are not well known to the audience like other big brands.

- **Market Size:** According to IMARC Group's latest published report, The India handicrafts market size reached US\$ 3,968.0 Million in 2022. Looking forward, IMARC Group expects the market to reach US\$ 6,218.4 Million by 2028, exhibiting a growth rate (CAGR) of 7.7% during 2023-2028.

- **Rivals:** Although they serve the Indian market, platforms like IndiaMART and Craftsvilla lack AI-powered capabilities for personalised curation and discovery. By cutting down on the amount of time consumers spend looking for products, these solutions can improve the shopping experience and increase customer happiness.

3. Target Specifications and Characterization

Indian craftsmen require a practical way to network with other regional artisans or vendors of premium raw materials. This is crucial to guarantee that the materials utilised in their handcrafted goods fulfil the requirements needed to create things that are both reasonably priced and aesthetically pleasing to consumers.

- **Dependable connections**

Supplier Network: A carefully selected roster of reputable companies that provide high-quality raw materials, guaranteeing that craftspeople have access to the greatest resources.

Verified Vendors: Each supplier is put through quality and reliability inspections, which lowers the possibility of subpar suppliers and guarantees a steady supply.

- **Market Integration**

In-Platform Purchasing: By allowing craftsmen to purchase raw materials directly, an AI-CAM integrated marketplace streamlines the procurement procedure.

Choices for Purchasing in Bulk: Artisans are encouraged to purchase goods in bulk at a discounted price with special offers and bonuses for large purchases.

- **Regional Collaboration:**

Local Artisan Network: Facilitates resource sharing and a sense of community by building connections between artists in the same vicinity.

Community Forums: Online discussion forums where artisans can exchange knowledge, assess, and suggest suppliers to one another in order to make well-informed choices.

Improvement of Product Quality:

For Indian artisans to produce handcrafted goods that are both visually beautiful and durable enough to compete with mass-produced goods, they require access to high-quality raw materials.

- **Assurance of Quality:**

Material Standards: Ensure that artisans are aware of what they are buying by providing thorough information on the provenance and calibre of raw materials.

Quality Certifications: To inspire trust in craftspeople and their clients, provide certifications for materials that adhere to particular quality requirements.

- **Enhancement of Skills:**

Workshops & Training: Provide frequent online and live workshops that address the best ways to incorporate high-quality materials into handcrafted goods, as well as how to choose and handle materials.

Expert Advice: Make professional guidance and consultations available to craftsmen so they can choose the right materials for their particular skills.

- **Resources for Product Improvement:**

Tutorials and Guides: These resources provide comprehensive written and visual guidance on enhancing the quality of products, encompassing topics like as material selection and finishing procedures.

Innovation and Trends: To keep artisans innovative and competitive, share information on the most recent advancements in materials and techniques, as well as about emerging trends.

4. External Search (Online sources)

<https://www.imarcgroup.com/india-handicrafts-market>

<https://www.ibef.org/exports/handicrafts-industry-india>

<https://www.indiantradeportal.in/vs.jsp?lang=0&id=0,31,24100,24111>

5. Benchmarking Alternate Products

Craftsvilla is a well-known Indian internet store for handcrafted and ethnic goods. Two advantages are a wide range of items and a powerful brand identity. On the other hand, market saturation and the absence of sophisticated curation tools are viewed as shortcomings.

IndiaMART: An extensive B2B marketplace offering access to a large number of customers. Its less tailored shopping experience is a major disadvantage in spite of this.

Meesho and WhatsApp Shops: Provide social commerce choices that are well-liked in India, but they don't have a specialised support structure for advanced curation and craftsmen.

6. Applicable Patents

https://www.researchgate.net/publication/346501646_Artificial_intelligence_in_recommender_systems

https://www.researchgate.net/publication/380378177_FUTURE_OF_E-COMMERCE_IN_INDIA_2024

https://www.researchgate.net/publication/379403244_Innovative_AI-Powered_Approach_for_Secure_E-Commerce_Payment_Processing

7. Applicable Regulations

- **Data security**

Indian Data Protection Laws: Adopt strong data protection procedures, like gaining user consent, encrypting user data, and giving users control over their personal information, to make sure the platform conforms with the Information Technology Act, 2000, and the forthcoming Personal Data Protection Bill.

User Data Privacy: In compliance with Indian data protection regulations, provide users with access to their data upon request, allow them to opt out of data sharing, and establish explicit privacy rules.

- **Trade regulations**

International Trade rules: Comply with import/export rules pertaining to customs paperwork, taxes, and duties in order to comply with international trade regulations. This applies to all shipments of handmade items

Shipping Compliance: Assist shipping companies in fulfilling legal obligations for the international shipment of handcrafted goods, making sure that proper labelling, packaging guidelines, and material limitations are followed.

- **Intellectual property**

Protection of Artisan Designs: Take action to stop illegal duplication and sales of Indian artisans' designs and goods in order to safeguard their intellectual property.

Trademarks and Copyright: Verify that all goods on the platform abide by Indian laws pertaining to trademarks and copyrights. Additionally, assist craftspeople in registering and protecting their intellectual property rights.

8. Applicable Constraints

- **Space:** Create a cloud-based platform to reduce the requirement for physical infrastructure and provide flexibility and scalability for future growth.
- **Expertise:** As a solo developer, e-commerce, AI, and UX/UI design expertise are necessary for the platform's efficient implementation and management.

9. Business Model

The project's business plan includes developing a carefully curated online marketplace that uses cutting-edge AI-driven recommendation systems to link craftsmen and customers. Commissions on sales made through the platform and maybe premium features for artisans are the sources of revenue.

10. Concept Generation

I was inspired to create AI-Curated Artisan Marketplace (AI-CAM) after observing how difficult it was for craftsmen to connect with more people. Seeing the shortcomings of current marketplaces, I imagined using AI to better identify products by analysing consumer preferences. My objective is to develop a platform that provides tailored advice, tackling the issues faced by craftspeople and differentiating AI-CAM from other markets.

11. Concept Development

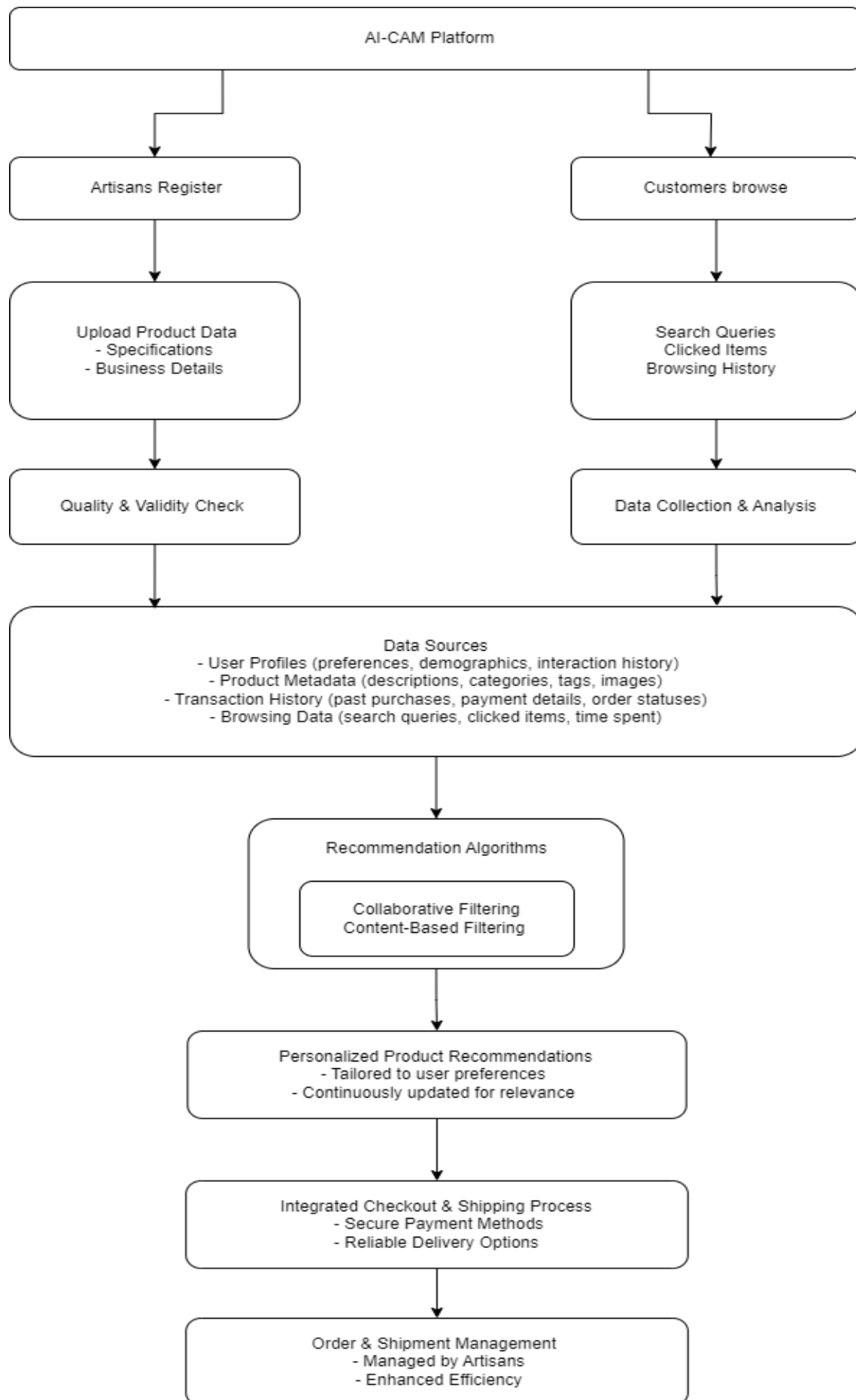
The goal of the AI-CAM project is to create a modern online marketplace that links qualified artisans with potential clients. AI-CAM will offer customised purchasing experiences by utilising advanced AI-driven recommendation algorithms such as collaborative filtering and content-based filtering. This will help craftsmen reach a wider audience and guarantee that customers find exactly what they're looking for. A variety of income streams will be available on the platform, such as commissions on purchases and exclusive services for artists including improved exposure and modern marketing resources. This approach strategy aims to establish a profitable and sustainable market that benefits both the consumers and artisans.

12. Final Product Prototype (Abstract) with Schematic Diagram

Abstract

AI-CAM will feature a user-friendly interface for artisans to upload their products, AI-driven recommendation algorithms to match products with consumer preferences, and integrated payment and shipping systems.

Schematic Diagram



13. Product Details

Working of the project

The seamless process of using AI-Curated Artisan Marketplace (AI-CAM) starts with artisans registering and selling their products. They upload product specifications and business details, which are subsequently checked for quality and validity. Next, examine product data and customer behaviour using collaborative and content-based filtering. Data is gathered from multiple sources, including user profiles and transaction history. This research makes it possible to provide individualised product recommendations based on user preferences. Customers are sent carefully chosen products that are continually updated to guarantee relevancy based on their past browsing and purchasing activity. Streamlining transactions through integrated checkout and shipping procedures, dependable delivery choices, and safe payment ways are provided. Orders and shipment are handled by artisans via the platform, enhancing efficiency and convenience for both sellers and buyers.

Data Sources

AI-CAM will make use of multiple data sources in order to improve its performance. User profiles, comprising details about customers and craftspeople such interests, demographics, and past interactions, will be gathered. Comprehensive product metadata, including listed items' descriptions, categories, tags, and photos, will be collected. While browsing data records information on how users explore the platform, such as search terms, items clicked, and amount of time spent on pages, transaction history records information about previous purchases, payment methods, and order statuses. When combined, these data sources will allow AI-CAM to offer customised recommendations and enhance the user experience as a whole.

Algorithms/Frameworks

The AI-CAM platform is intended to make use of many recommendation algorithms, such as content-based filtering, which suggests things with comparable attributes, collaborative filtering, which analyses user similarities based on product interactions, and hybrid approaches, which yields recommendations that are more accurate. In order to ensure clarity and search engine optimisation in product descriptions and customer evaluations, Natural Language Processing (NLP) will be utilised for analysis, improvement, and sentiment summarization of important aspects. Models will be created and implemented using machine learning frameworks such as TensorFlow and PyTorch for behaviour analysis, NLP tasks, and recommendation systems. Not all of these features have been put into use yet.

14. Conclusion

Using AI, AI-CAM creates a one-of-a-kind marketplace that gives customers an exceptional buying experience and increases the visibility of Indian artisan products. AI-CAM has the ability to completely transform the handcrafted goods market by meeting the unique needs of Indian consumers and artisans, while fostering local workmanship and stimulating the country's economy.