

## ***Blockchain, sustainability and heritage in transforming india's gold jewellery exports supply chains***

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### **1. Introduction:**

The export of gold jewellery is a major feature of international trade, and this is a reflection of the economic value and importance of gold. Gold jewellery is not just a luxury product; it is also a store of value that has shown relative resiliency to economic fluctuations. In some parts of the world, particularly in Asia and the Middle East, gold is considered sacred and is a vital part of their tradition. Thus, the export of gold jewellery is a major contributor to foreign exchange earnings of these exporting nations.

The global gold jewellery exports market is dominated by a few countries that possess a conducive manufacturing environment and skilled labor force. India has been identified as a major player in the gold jewellery exports market owing to the presence of a conducive manufacturing environment and skilled labor force. Additionally, India has a rich cultural heritage of gold jewellery that meets the market demands of the present and past. China has established itself as a major player in the gold jewellery exports market through sustained efforts in industrialization and the adoption of modern technology and cost-effective production strategies. The United Arab Emirates, particularly Dubai, has established itself as a major player in the gold jewellery exports market owing to the presence of conducive trade policies and favorable geographical positioning. Moreover, Italy is a major contributor in the gold jewellery exports market owing to the presence of skilled labor force and established brand image. Turkey has also been identified as a major player in the gold jewellery exports market owing to the presence of rich artisanal skills and robust production methodologies.

However, the gold jewelry export market faces various structural and operational issues despite the presence of competitive advantages. In the gold jewelry export market, there has been a significant change in the market demand for gold jewelry. Today's consumers are demanding lighter gold jewelry with customization and modern styles in addition to traditional styles. Additionally, the gold jewelry export market is likely to be affected by the dynamic changes in the tariff structure and geopolitical issues. Supply chain issues are the major concern in the gold jewelry export market. Supply chain issues include the unorganized structure of the supply chain and the lack of coordination among the members of the supply chain. Inefficiency in the supply chain may also include information gaps and higher transaction costs. Situational analysis of the gold jewelry export market is necessary in terms of the supply chain issues. Quality, purity, and timely delivery are the major issues in the gold jewelry export market.

In the recent past, the issue of sustainability and accountability has become a major concern in the international trade environment, including the gold jewelry industry. International consumers, as well as buyers and sellers, are demanding more transparency in the business processes of the industry. Ethical concerns related to the mining of gold, including the environment, working conditions, and conflicts, have put pressure on gold exporters in the international market. Thus, it has become essential for the exporters to comply with the environment, social, and governance (ESG) standards in the gold business. This would include the responsible sourcing of gold, fair labor practices, and a commitment to reducing the environmental impact of the business processes.

Technological development is gradually changing the gold jewellery export market through the resolution of supply chain issues. Of all the technologies in development, blockchain technology has been at the forefront in its potential to improve supply chain transparency, traceability, and trust. This technology allows for the development of secure, decentralized, and tamper-proof digital ledgers to store information at different stages of the supply chain, ranging from gold mining to manufacturing, certification, and export. Through the provision of credible information regarding the origin, movement, and authenticity of the gold jewellery, blockchain technology can help resolve the information gaps in the supply chain. This is especially important in the gold jewellery industry due to its recent rise in ethical importance among international buyers.

Apart from this, the rise of e-commerce and digital marketing has significantly influenced international trade in the jewellery sector. Digital platforms help exporters gain better access to global markets. These platforms minimize the dependency of exporters on traditional intermediaries. Exporters can gain more visibility in global markets through online marketplaces, online exhibitions, and online branding. These factors are

beneficial for small and medium-sized enterprises that seek global trade. However, several challenges are associated with the rise of digital trade. Some of these challenges include issues related to data security, adherence to international regulations, and the requirement of a strong logistics and payment infrastructure for high-value international trade.

Logistics performance is a significant factor in determining efficiency in gold jewellery exports. Gold jewellery is of high value, delicate, and sensitive. Therefore, exporters require a strong and well-organized logistics infrastructure for transporting gold jewellery. Disruptions in the logistics chain may cause financial losses for exporters. Therefore, exporters require supply chains that are cost-efficient and capable of mitigating risks related to theft, damage, and delays in shipments.

In the gold jewelry export business, logistics efficiency may be hampered by infrastructural limitations, the intricacy of customs procedures, and the heterogeneity of regulations in different regions or countries. Differences in the scope of regulations related to hallmarking, taxation, and export procedures add to the intricacy of the procedures that the export business has to undergo, thereby increasing the cost of logistics efficiency. Lack of real-time information in the logistics network may also add to the problems faced by the export business, thereby highlighting the need for a streamlined logistics efficiency in the gold jewelry export business.

This study aims to identify the structural gaps in the export supply chain, specifically in the gold jewelry export supply chain, with emphasis on the adoption of blockchain technology, the performance of the supply chain, and the results of trade that are influenced by considerations of sustainability. This aims to identify the potential of technology, specifically blockchain technology, in resolving the problems in the export supply chain by promoting the coordination of the different actors in the supply chain through the establishment of trust.

This study aims to investigate the relationship that exists between sustainability practices and export performance, including acceptance in foreign markets. Sustainability has emerged as a crucial factor in trade relationships and decision-making, given the growing importance of ethical procurement, sustainability, and adherence to ESG factors. By creating a nexus between supply chain transparency and ethical compliance, this study aims to build a cohesive understanding of how sustainability-oriented practices can be used to build competitiveness in global gold jewelry trade.

In conclusion, it is evident that gold jewelry exports remain a significant contributor to global trade. However, it is also evident that this industry is in a period of transition, driven by advancements in technology, sustainability, and changing consumer behavior. Supply chain issues, logistics, blockchain, and sustainability are increasingly becoming crucial factors in building resilience and enhancing competitiveness in global gold jewelry trade. This study aims to provide significant insights into how gold jewelry exporters can overcome emerging challenges and leverage technology to build sustainability in global trade.