

# A REVIEW PAPER ON AN ONLINE PLATFORM TO LINK POTENTIAL DAIRY IMPORTERS OF THE WORLD WITH THE MAJOR DAIRY PRODUCT MANUFACTURERS OF THE COUNTRY

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**Abstract** - Online platform strategically crafted to facilitate seamless collaboration between international dairy importers and prominent dairy product manufacturers in a specific country. The platform is designed with a user-centric approach, offering a user-friendly interface and a sophisticated search and matching system to optimize connections. Manufacturers showcase their capabilities through detailed profiles, emphasizing product range, production capacity, and adherence to international quality standards. Importers, in turn, provide specific preferences, creating a transparent and efficient matchmaking process. Integrated communication tool enables secure negotiations, with support for document sharing and contract discussions. The platform prioritizes quality assurance, allowing manufacturers to highlight certifications, which can be verified by potential importers. Transaction facilitation is a key feature, incorporating a secure payment system and comprehensive order tracking tools. Multilingual and multicurrency support ensures inclusivity for a diverse global audience. Reviews and ratings contribute to transparency, fostering trust among users. Legal and regulatory compliance is prioritized, providing a secure and legally sound environment for international trade.

**Key Words:** – Importers, Manufacturers, User-centric approach.

## 1. INTRODUCTION

The crucial and dynamic sector that makes a substantial contribution to both economic growth and international trade. We provide “Global Dairy Connect,” a simplified and effective network that links major dairy product manufacturers with prospective importers globally. The intricate nature of the dairy industry, coupled with its wide range of products and strict quality requirements, calls for

a platform that transcends conventional trade processes. Global Dairy Connect is intended to be a state-of-the-art web platform that will transform the ways in which dairy sector participants interact, transact, and form significant alliances. This introduction gives a summary of the difficulties the world dairy trade faces, outlines the goals of Global Dairy Connect, and offers an insight into the salient characteristics that will revolutionize the business using this platform. As we examine this platform’s nuances, it becomes clear that Global Dairy Connect is more than just a marketplace—rather, it is a catalyst for promoting efficiency, transparency, and long-term growth within the global dairy industry. Probably one of the most distorted agricultural sectors in the world, the dairy industry is supported by producer subsidies in many developed nations, export subsidies provided by governments to put the excess production on international markets, and tariff and non-tariff barriers built by both developed and developing nations to shield their dairy industries from “unfair” competition. For instance, the US dairy industry is thought to get a producer subsidy similar to 48% in the US, the EU alone spends about 16 billion euros annually supporting the dairy sector, and Mexico imposes tariffs of more than 100% on a range of dairy products. Although they are very difficult to measure, producers and consumers in industrialized and developing nations are affected differently and significantly by these market inefficiencies.

There is general agreement that the world market price of milk would rise if OECD dairy subsidies were to be eliminated, but estimates of how much would increase vary greatly, and given the complexity of the global dairy industry, there is disagreement about who would profit the most and who would lose out from a higher world market price. More research in this area seems necessary given the significance of milk production as an industry that sustains the livelihoods of millions of small-scale farmers in

developing nations, the apparent harm that the current policy regimes supporting dairy production in developed nations causes to producers in developing nations, and the focus on subsidies and their effects in WTO trade negotiations. aims to advance knowledge about the effects on the welfare of small-scale dairy producers and consumers in developing nations of both the long and short- term dumping of dairy products (primarily milk powder) by the US, UE, and major producers. The dairy businesses in many countries are organized along cooperative lines because, while even the largest dairy farms are unable to give sufficient quantities to a processing facility, each dairy farm only supplies a small portion of the total milk processed. Cooperative for milk producers pool the resources and interests of numerous dairy farmers, giving them more clout when negotiating with processors or even operating their own processing facilities. Cooperatives can also ensure that farmers will be paid for the daily produce they produce.

## 2. LITERATURE REVIEW AND RELATED WORK

Ron Berger and Anat Hovav [1] suggested that agriculture has been slow to embrace information technology, which is crucial for achieving specific business goals like rigorous agricultural product quality, cost-effective labor, and a well-balanced production mix. The implementation of the Dairy Management Information System by S.A.E. Afikim exemplifies the application of such technology in ensuring accuracy in farming practices. The study indicates that adopting a Six Sigma-based dairy management information system supports four out of five proposed benefits, including a drop in product defects, optimization of the product mix, and improvements in both quality and efficiency.

Amir Shabani [2] suggested that the application of Data Envelopment Analysis (DEA) for vehicle selection poses challenges for traditional DEA models. Specifically, universal DEA models encounter difficulties in handling dual-role components, the comparison of decision-making units (DMUs) with virtual DMUs rather than actual ones, and addressing ties between DMUs where many are identified as efficient. These challenges highlight the confines of classical DEA ranking models for specific data sets. To overcome these shortcomings, a novel approach has been developed. This proposed method utilizes Free Disposal Hull (FDH) technology and adopts an over-efficiency perspective to establish a comprehensive ranking of efficient DMUs, even in the presence of dual-role components. The application of this innovative procedure is exemplified to demonstrate its effectiveness in addressing the mentioned issues.

J. Environ [3] suggested that as per capita income increases and healthy consumption concepts gain popularity in China, there is a rising demand for dairy products among Chinese consumers. However, the frequent occurrences of safety incidents related to dairy products have heightened consumer concerns regarding the quality and safety of such products. Consequently, some consumers show a preference for imported dairy products that are perceived to offer higher quality at lower prices. In response to the agricultural supply side reforms, the development trajectory of China's dairy industry is undergoing a shift from quantity-focused to quality focused. Despite this transition, the quality of milk in China still lags behind that of developed countries in the international dairy industry. The diversity in resource endowments between domestic and international markets has resulted in a considerably higher price for domestic raw milk, perpetual even the Cost, Insurance, and Freight (CIF) of imported dairy products converted into raw milk This situation means that China's dairy industry currently lacks a price advantage. While there is an evident commitment to improving quality, addressing the challenges in resource distribution and cost structures is crucial for the domestic dairy industry to compete more effectively in the international market.

Albert Tan [4] suggested that food is consumed on a daily basis because people believe that it is manufactured processed, transported, and stored according to safety and quality standards. But the numbers provide a worrisome picture of the world we live in about forty thousand people die each year from diseases contracted from consuming tainted food products, which affects almost six hundred million people worldwide. Dairy products are a popular food category that is enjoyed all over the world.

A. Kumar, D C Rai, K.R Choudhury [5] suggested that India enacted economic policy reforms in 1991 with the goal of liberalizing and integrating with the world economy. Dairy products found their way into global market thanks to these reforms and the ensuing economic liberalization. The Indian dairy industry has grown impressively, driven supply, a growing home market, and an emphasis on supplying the growing demand for demand for dairy products abroad. If this growth rate is maintained, India may be able to actively pursue dairy exports. forecasts for local demand support this optimistic picture by showing that India could increase its exports of dairy products. It is clear that India's geographic location makes it advantageous to supply milk to neighbouring countries milk deficient regions. It is projected that the need for dairy products in these underdeveloped nations would increase,

offering India a chance to take use of its advantageous location. India must prioritize raising the calibre and hygienic standards of dairy products as well as increasing the productivity of milk production and processing if it hopes to fully benefit of milk production and processing if it hopes to fully benefit from these advantages. India should focus on importing goods from other developed nations that are presently imported by nations like Bangladesh, Nepal, and Sri Lanka in order to become more competitive. Further strengthening India's position in the global dairy market can be achieved by looking into more liberal export rules, especially for shipments to SAARC countries.

Nimbalkar. V, Verma. H. K, Singh. S [6] suggested that innovative dairy farming methods are desperately needed in this day and age, especially since there are less natural resources available and the world's population is expanding quickly, placing a heavy demand on food supply. Macroeconomically speaking, milk production which comes from small scale individual farms contributes significantly to the global economy. The dairy industry does, however, have difficulties, chief among them being low animal productivity attributable to inefficient and subpar farm management techniques. In order to overcome these obstacles, several technologies must be applied in order to increase animal output, especially in underdeveloped countries where most dairy farms are small scale and run using conventional techniques. farm innovations include new products, services, and methods developed specifically for given area, the physiological stage of the animals, and financially feasible ways to increase the daily produce of the animals. Innovative solutions are available, but their broad applicability is still limited, and many of them have not yet reached the grassroots level. The adoption patterns of farmers as well as their demographic, social, and economic traits serve as important barriers that limit the influence of innovations. The purpose is to present low cost and easily managed dairy farming innovations that can be used to different kinds of farms in different tropical countries that operate in rural areas. The objective is to increase animal productivity, which will therefore improve the socioeconomic welfare of farmers.

Basu .A [7] suggested that the current analysis attempts to predict how the India-EU Free Trade Agreement (FTA) would affect trade flows, earnings, and welfare in the dairy industry in India. Knowing the ramifications of an FTA with the EU becomes essential given that the EU is the world's largest supplier of dairy products and that India's dairy industry is heavily protected. Using a partial equilibrium framework, the analysis and simulation result show that trade creation, not trade diversion, is the main

cause of the expected increase in dairy product imports from Indian. This shows that other nation outside the trade alliance are not being negatively impacted by the FTA's inefficient dairy commerce. The study uses the gravity model to access the possible raise in dairy sector imports as a result of trade liberalization, which improves the analysis. According to the Poisson Pseudo-Maximum Likelihood (PPML) calculations, the value of dairy imports increases by 3.4% for every 10% decrease in tariff rates. The analysis indicated that even with the significant projected raise in dairy imports, the elevated value as a percentage of India's local dairy product output would not exceed 1%. The suggests that although there is a noticeable effect on imports, the domestic dairy industry is not anticipated to be overwhelmed or severely disrupted in terms of production.

Nalla.V [8] suggested that the dairy industry in India faces many obstacles, such as inefficiencies, perishable food items deterioration, inferior quality commodities, improper weight and measure, mismatches between supply and demand Ling wait times, widespread corruption, uncourteous behavior from shopkeepers, and inadequate service delivery. SCM (supply chain management) procedures must be streamlined in order to address these problems. This can improve operational effectiveness and lower transit losses and thefts. The dairy sector may refuse inefficiencies at different supply chain levels by streamlining its supply chain management procedures. This entails minimizing mismatches by coordinating supply and demand, guaranteeing precise weight and measurement to combat malpractice, and improving the management of perishable items to prevent deterioration. Shorter wait times can also benefit from summarization procedures, which will lessen annoyance for customers. Furthermore, it is crucial to fight corruption and advance moral behavior in the supply chain. Fair trade and corruption-related issues can be addressed by the sector by putting in place open and responsible supply chain management methods. Additional advantages of a well-managed and effective supply chain include better shopkeeper behavior and improved service delivery. In order to overcome In order to overcome obstacles and boost overall productivity, the Indian dairy industry must simplify its supply chain management procedures. In the end this can result in a supply chain that is more dependable and customer-friendly, which is advantages for the sector and for customers.

Khanna.A, Jain.S, Burgin.A, Bolshev. V, Panchenko. V [9] suggested that issues with the traditional centralized food supply chains include data loss, inconsistent quality,

anomalies in the product, and a single point of failure. India has to update its centralized supply chain strategy in light of country's high number of food fraud and contamination incidents. Understanding how crucial it is to guarantee the safety of dairy product, especially for children's nutritional needs, we suggest a blockchain-enabled supply chain infrastructure for the Indian dairy sector. This platform focuses on dairy products, such as butter, cheese, and milk. Traditional supply chain can be transformed into decentralized reliable, transparent tamper-proof and sustainable system by utilizing blockchain technology, which is well-known for its transparency and security qualities. The proposed platform aims to avoid simulating, maintain nutritional properties, detect adulterated and contamination, improve the economic viability of dairy farming and increase the profitability of dairy enterprise in addition to emphasizing food traceability. These capabilities are categorized by the article into four effect dimension : operation, sustainability, social impact and economic impact. The Internet of Things (IOT), smart contracts, and rapid response code(QR Code )technology are all integrated to the dairy supply chain platform powered by blockchain . By tackling the socioeconomic, operational, and sustainability issues facing the dairy business the integrated approach has the potential to completely restructure supply chain in the dairy sector.

Acosta .A, ArceDiaz.E ,MC Corrison.S ,Nicolli.F , Sammartino.A, Schneider.F , Scudiero.L, Steinfeld.H ,Ventrelli.E, Wickramasinghe. U [10] suggested that The global threat to economies and society posted by the coronavirus illness (COVID-19)is unprecedented in its onset and impact. A noteworthy illustration of the difficulties encountered by food supply networks during the pandemic is provided by the dairy industry. This research adds to the increasing amount of information about the pandemic's effects on the dairy industry by providing by the details on the short and long term impacts of COVID-19 on global food chains. Despite being introductory in nature , the results are extremely important for deepening our understanding and providing insightful data for the sectoral policy conversations that are currently taking place. The purpose of this study is to provide decision makers with information regarding the pandemic's effects on the dairy industry, enabling them to plan strategically and modify policies in response the changing COVID-19 issues.

Adam C, Ramirez M and Torres Maluf I [11] suggested that Dairy products are widely used in food services and packaged goods, whether they are eaten on their own or a necessary ingredients in a variety of culinary items. They

include commonplace goods like milk and yogurt and are essential to well known goods like cheese pizza .Dairy's widespread use makes it a good example of the larger food industry , where consumer tastes are intricately linked to industrial developments. Due to difficulties brought on by changing consumer behaviour, heightened competition and trade dynamics, the dairy industry has had a slow growth trajectory. A Study of a representative sample of international dairy companies shows that cumulative return on invested capital (ROIC) decreased by 3.0 percent between 2008 and 2007, from roughly 9.5 percent to 6.5 percent . The decline in ROIC indicates that even if revenue and margins are growing at rates of two and three percent annually, respectively, they are not keeping up with the cost of capital needed to create economic values. It's interesting to note that despite these difficulties . the top five dairy companies in the world had a 4.1 percent growth in their margins from 2013 to 2017. This suggests that some of the top firms in the market managed to increase their profitability throughout this time , even in the face of challenges faced by the whole sector. The complexities of the global dairy industry highlight how businesses must adapt to shifting consumer preferences, cutthroat competition, and trade issues in order to maintain profitability and growth.

Beillard M and Mani R [12] suggested that India's fluid milk production to reach 203.5 million metric tons (MMT) in the market year 2022(January-December) by the FAS New Delhi prediction , up to 2 % from the USDA official figure of 199 MMT in 2021. Of this production , about 46 % is marketed to customers in rural areas or consumed at the producer level. Unorganized players and milk cooperatives are used to market the remaining 54% with more than half of the country's milk produced, Uttar Pradesh, Rajasthan, Madhya Pradesh, Andhra Pradesh and Gujarat are India's top five milk producing states. With water buffaloes accounting for 49% of milk production, they are a big contributor. Estimates for milk production in 2022 are 700,000 MT, up over 3% from the official USDA estimate of 680,000 MT in 2021. Stronger prices and rising export demand especially for reconstituted milk and skim milk powder (SMP)-are the main drivers of this expansion . It is anticipated that 6.5 MMT of butter would be produced in 2022, primarily due to rising domestic butter consumption brought on by rising incomes. Forecast SMP consumption for 2021 is 694,000 MT , up 2.5% from the official USDA estimate of 680,000 MT . The expected amount of butter consumed is 6.4 MMT, which is a 3% increases above the 6.2 MMT forecast from MY 2021. India's high local consumption of dairy products means that it exports very little of them. SMP exports are expected to increase in 2022,

with a prediction of about 20,000 MT, up 33% from the USDA's official projection of 15,000 MT in 2021. Dairy items that are imported include cheese, ice cream, edible ice, casein, lactose and milk albumin. The United States, France, Thailand, Singapore, New Zealand and the Netherlands are important suppliers to India. SMP and butter imports are expected to be negligible in 2022 as a result of rising domestic production, which has historically been influenced by the level of domestic output that controls inflation.

Gebreyohanes.G, Yilma. Z, Moyo.S and Mwai.O [13] suggested that Ethiopia's dairy production system is mostly smallholder-based and is distinguished by poor productivity and output. Nevertheless, the output at this time cannot keep up with the demand of the expanding human population. The current subsistence-oriented livestock production system needs to be changed into one that is focused on the commercial markets in order to address this and be in line with government objectives like reducing poverty and promoting food security, nutrition, and foreign exchange earnings. This study emphasizes how crucial it is to routinely pinpoint the dairy industry's most pressing issues and openings in order to provide interference and investment choices that work for the public and private sector. A thorough understanding of the dairy value chain including its actors, roles, and the necessary horizontal and vertical merging among these actors is necessary for the transformation process. A lack of market orientation, insufficient and inefficient input and service delivery, limited private sector investment, weak regulatory institutions, low technical, technological, and financial capacity, and inadequate market infrastructure and linkages are some of the major issues facing the dairy industry. For the dairy business to develop sustainably, these issues must be resolved. The report suggests a number of initiatives to promote the dairy industry's commercialization. Enhancing input supply (feed, improved breeds, artificial breeding, veterinary inputs), improving service provision (veterinary, extension, market, regulatory), encouraging value addition, fortifying market ties, and conducting research to create high-yielding, tropically adapted dairy breeds are a few of these. Other initiatives include recognizing and strengthening institutions that support the dairy industry. It is advised that the public sector make targeted investments, revise current policies, strategies, rules, and standards, and create new ones that support the transformation of the dairy industry in order to accelerate the commercialization process. Furthermore, for a more substantial and extensive impact, development partners involved in dairy development should coordinate their programs with

governmental priorities. The overarching goal of the strategy is to move Ethiopia's dairy sector toward economic expansion, sustainability, and bettering the lives of smallholder farmers.

Grout.L, Baker.M, French.N, and Hales.S [14] suggested that Dairy output has increased significantly in response to the growing demand for dairy products worldwide, and many countries have seen quick improvements in their dairy systems. While higher output might help ensure food security, concerns regarding the possible negative effects of dairy production and consumption may have on human health and the environment have been raised in certain locations due to higher stocking rates. The purpose of this review was to list and explain the possible risks to health as well as the advantages associated with the production and use of dairy products. The review used electronic databases like Medline, Embase, Scopus, Web of Science, PubMed, and Google Scholar to look for published research on the effects of dairy production and consumption on human health. The results emphasized a number of possible risks to public health, such as those associated with the workplace, the environment, ecosystems, foodborne illness, and chronic diseases linked to poor diet. Certain effects, like climate change, may not only affect the people who are immediately impacted. Dairy production and consumption were linked to important health advantages despite these possible risks. Dairy products offer vital nutrients and help create jobs in a number of localities. It is critical to carefully balance the exposure to potential risks against these health benefits as the dairy industry grows globally. The evaluation recommends that the variety of impacts should be considered when making decisions about the best levels of dairy production and consumption, local land use, and the identification and management of particular dangers from this sector. Future studies should take into account various exposure pathways, socioeconomic indicators, and environmental factors, particularly in areas where dairy production is a major industry. This all-encompassing strategy can support ethical and sustainable dairy production and consumption methods.

Janssen.E, Swinnen.J [15] suggested that the productivity and well-being of impoverished farmers in developing nations will be greatly enhanced by the adoption of contemporary agricultural technologies. It is unclear, therefore, how value chains affect the adoption and transfer of technology in these nations' food chains. Using exclusive survey data, this study examines the adoption of technology at the farm level in India's dairy industry. The government of India has actively encouraged the growth of the dairy industry due to its potential for "pro-poor"

growth, making the dairy chain especially important in the country. Value chain initiatives have also had a significant impact on dairy farm technology in other nations where demand is rising and markets are not ideal. Even though milk production and consumption have increased quickly in India, there has been a mixed uptake of technological innovations including better feed, hygienic practices, and an emphasis on livestock. Different technologies and geographies have different adoption rates; certain technologies and areas have lower adoption than others. Remarkably, value chains don't seem to have much of an impact on persuading people to adopt new technology as of yet. According to the study, there remain obstacles to the widespread adoption of contemporary technologies at the farm level, even in benefits the poor. Designing successful interventions to improve productivity and lives in the dairy sector in developing nations like India requires an understanding of the factors driving technological adoption and the function of value chains.

### 3. ANALYSIS OF PROBLEM

In order to perform a comprehensive examination of potential issues related to the creation and functioning of the web based platform that links international dairy importers with prominent producers in a certain nation, take into consideration the following crucial domains :

#### 3.1 Market Difficulties:

Issue: The platform's success may be impacted by shifts in consumer tastes, variations in worldwide demand, and changing market dynamics.

Analysis: To stay up and date on industry trends, foresee changes, and modify the platform appropriately, regular market research is crucial.

#### 3.2 Regulatory and Compliance:

Issue: Managing a variety of foreign laws, trade limitations, and compliance requirements can be difficult.

Analysis: Working with legal professionals and having a solid grasp of international trade regulations are essential. Compliance of changes to the regulations.

#### 3.3 Technological Difficulties:

Issue: There could be technological difficulties in creating a platform that is secure, scalable, and easy to use.

Analysis: To handle technical issues, it is recommended to do regular testing, include competent developers, and stay abreast of technology changes.

### 3.4 Authenticity of the product and quality assurance:

Issue: It might be difficult to guarantee the genuineness and calibre of dairy products in a global trading setting.

Analysis: This issue can be lessened by working with reliable manufacturers, adding traceability features, and putting in place strong quality control methods.

## 4. ARCHITECTURE

In the below diagram there are three components Users, Data Storage, Messaging. In Users there are Seller, Admin and Buyers.

In Data Storage there is Chats, Sellers, Product, Admin, Product requests, Location, Requirements, Buyers, Conversation and in Messaging we have Chat Services. All These components are Connected And inter linked as shown in below diagram.

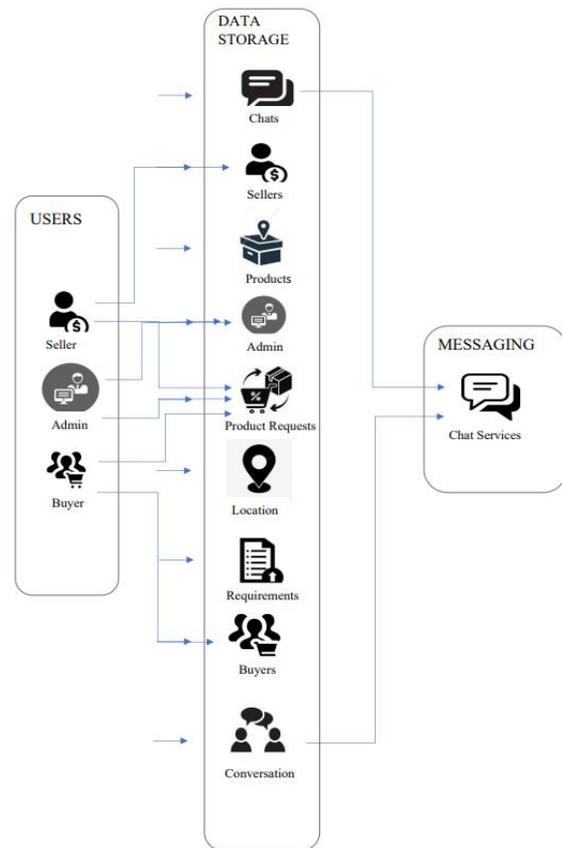


Fig -1: Dataflow diagram for linking dairy importers with dairy product manufacturers.

## 5. PROPOSED WORK AND OBJECTIVES

### 5.1 Proposed Work

#### 5.1.1 Platform Development

Create an intuitive web platform that enables smooth communication and business dealings between major dairy manufacturers in the target nation and international dairy importers. Make that the platform is safe, scalable, and complies with laws governing international trading.

#### 5.1.2 Market Research and Analysis

Carry out comprehensive market research to determine prospective competitors, comprehend the need for dairy products worldwide, and analyze industry trends. Evaluate the regulatory environment around the global dairy trade and integrated the necessary compliance procedures into the platform.

#### 5.1.3 Stakeholder Engagement

Determine the needs and preferences of prospective dairy importers around the world and establish communication with them. Form alliances with the leading producers of dairy products in the intended market to guarantee their involvement on the platform.

#### 5.1.4 Technical Infrastructure

Provide a strong technical foundation to enable services like data analytics, safe transactions, real-time communication, and product listings. Include the technologies that are required to improve platform efficiency and user experience.

### 5.2 Objectives

#### 5.2.1 Establish a Working Platform

Objective: Within [given timeframe], successfully build the internet platform.

Key Outcomes: Finish platform development, carry out testing, and guarantee that all required features are operational.

#### 5.2.2 Attract and Onboard Users

Objective: Within the initial [given duration], draw in at least [defined number] of users.

Key Outcomes: Put into practice efficient marketing plans, interact with prospective customers, and offer incentives for early adoption.

#### 5.2.3 Facilitate Successful Transactions

Objective: Permit [number of successful transactions] to occur in the first [timeframe provided].

Key Outcomes: Streamline transaction processes, build user trust, and guarantee safe payment processing.

## 6. CONCLUSION

In conclusion, there is great potential for expediting the global dairy trade process through the creation of an online platform that links significant dairy product makers in a particular nation with prospective importers of dairy products from around the world. The platform supports efficient and transparent interactions between importers and manufacturers by offering a consolidated communication and transaction platform. This lowers obstacles to entry and fosters international collaboration in the dairy business. An important development in the global trade panorama of the dairy sector is the closure of an online platform designed to link major dairy product makers in a particular country with prospective importers of dairy products from around the world. Through the utilization of digital connectivity, this platform acts as a stimulant to enable effective and transparent communication between manufacturers and importers, resulting in the development of mutually beneficial partnership and the acceleration of growth within the dairy industry.

The platform's powerful features and user-friendly interface enable stakeholders to streamline procurement processes, establish important cross-border business ties, and access a wide range of dairy products. The platforms makes it easier for players to take advantage of new opportunities in the global dairy trade by facilitating real-time communication and bridging geographical obstacles, which improves market access.

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