

Zhejiang GM2D
Demonstration Area and
“Zhejiang Food Traceability
Chain” Digital Project
Applied in the Food Field



The Consumer Goods
FORUM



End-to-End
Value Chain

Preface

by **Ruediger Hagedorn**
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The Consumer Goods Forum

Welcome to this comprehensive analysis of the Zhejiang Province market, where we delve into the latest advancements in technology that are transforming the way businesses operate and interact with consumers.

The document provides an in-depth analysis of the Chinese market for Consumer Products, offering valuable insights and data points for businesses looking to enter or expand their operations in China.

The study covers various aspects of the market, including consumer behavior, industry trends, competition, and market size. In today's fast-paced digital landscape, speed, convenience, safety, and efficiency are paramount for any successful business.

And that's where Zhejiang Province comes in—a hotbed of innovation and technological prowess that is helping companies streamline their operations and deliver exceptional customer experiences.

With the advent of QR codes based on the GS1 Digital Link Standard, businesses can

now provide consumers with instant access to product information, reviews, and purchasing options. Consumers are no longer constrained by traditional marketing channels; instead, they may access a wealth of information at their fingertips, at any time, and from any location.

Standards have the potential to drastically increase the productivity and ease with which any standard is deployed. By leveraging this technology, businesses can also improve the safety and security of transactions, reduce costs associated with physical inventory management, and enhance customer engagement through personalized offers and experiences.

In Zhejiang Province, a hub of technological excellence, businesses are embracing these advancements with gusto – using 2D technology to stay ahead of the curve and deliver unparalleled value to their customers.

So, let us embark on this exciting journey together – exploring the latest trends, insights, and innovations that are shaping the future of commerce in Zhejiang Province.

by **Yao Hua, Deputy Director General** of Zhejiang
Provincial Administration for Market Regulation

Driven by the digital revolution sweeping the global commodity market, the Global Migration to 2D Project (GM2D) has emerged as a transformative strategy, ushering in a new era of digitization for the industry. With its comprehensive, global, forward-thinking, and pioneering nature, this initiative holds immense potential to enhance global commodity circulation, streamline supply chains, foster international standard recognition, and facilitate trade.

Zhejiang, a leading economic province in China, has been a trailblazer in innovation and implementation. We have boldly ventured into the unknown and taken the lead in establishing the world's first GM2D demonstration zone. Through innovative applications of digitization, technology and regulations, we have optimised management processes across production, distribution, storage, and consumption. Notably, we've achieved remarkable results in tracing the quality and safety of food and products, providing invaluable insights for the global

rollout of GM2D and contributing Zhejiang's unique perspective and solutions to the digital transformation of the global commodity market.

We recognise that interconnected commodity data is essential for market efficiency. Therefore, we strongly encourage market participants to adopt 2D codes based on GS1 standard, as the Second-generation ID Card for commodities. This innovation not only reduces transactional costs and improves operational efficiency, but also empowers consumers with more transparent and reliable information. We firmly believe this will further refine government traceability systems, optimise supply chains, reshape business models, and enhance the quality of life for all.

This document aims to showcase Zhejiang's remarkable achievements in implementing 2D codes based on GS1 standard in the food industry to our global audience. Through millions of successful food applications, we demonstrate how these 2D codes enhance product traceability and transparency

between businesses and consumers. These practical examples, implementation effects, and real-world cases offer valuable insights for industries worldwide.

As the Zhejiang Provincial Administration for Market Regulation, we are committed to ensuring a fair, transparent, and well-regulated market. We prioritise the modernization of food and product safety governance, playing a pivotal role in overseeing supply chain transformations. In the future, we will continue to leverage the strategic guidance of the government, the Visible Hand, to precisely identify market demand, thereby harnessing the market's Invisible Hand to jointly drive the GM2D Project forward. Together, we will contribute to the sustainable development of the digital economy.

We are confident that, with the collective efforts of our global partners, GM2D will achieve unprecedented success worldwide. Let's collaborate to embrace the bright future of the digitalized global commodity market!

The Global Migration to 2D Project

At the end of 2020, GS1 (Global System 1) launched an international project called Global Migration to 2D (GM2D), the primary goal of which is to lead industry sectors around the world to transition the retail landscape from 1D barcodes to 2D barcodes by 2027, bringing a far-reaching impact on global commodity circulation, economic and trade development, as well as the reshaping of enterprise business forms.



Figure 1 First Screen of “GM2D Online” System



The Construction of Zhejiang GM2D Demonstration Area

In response to the prevailing chaos in the market, characterised by a variety of demands, scattered management, disorganised regulations, and inadequate security with regard to 2D codes, under the technical support of Zhejiang Institute of Standardisation (Zhejiang Branch of GS1 China), Zhejiang Provincial Administration for Market Regulation (Zhejiang AMR) signed a joint announcement with GS1 and GS1 China to build the world's first GM2D demonstration area in Zhejiang on May 19, 2022, leveraging the digital groundwork the province has laid in areas such as cold chain protection, food traceability, and product regulation. As of now, Zhejiang Province has successfully issued 315 million “second-generation ID cards” for 37.3 thousand types of products belonging to 86 thousand market entities. These 2D codes have been utilised in circulation, consumption, and scanning, accumulating a total scan count of 386 million times.

Advancing the GM2D demonstration area in Zhejiang takes on significant importance in

accelerating data interoperability, promoting trade facilitation, and supporting the internationalisation of Chinese manufacturing, technology, and services. It holds key implications for fostering international cooperation in the digital economy. Firstly, it has a global impact, playing a crucial role across various industries in society. This initiative contributes to enhancing the circulation of global market information and driving global economic integration. Secondly, it has an international dimension, as it will be promoted in over 150 countries and regions globally. This empowerment aims to optimise and upgrade the global industrial and supply chains, effectively promoting facilitation in global trade. Thirdly, it aligns with the era of the digital economy, being a natural outcome of this digital age and a necessary trend in the development of the times. It caters to the contemporary, high-quality lifestyle needs of ordinary people. Fourthly, it has a leading role in driving innovation in technology, processes, and rules. It presents the Zhejiang solution as a contribution to the world.

The Zhejiang Food Traceability Chain System

In 2021, the Zhejiang Provincial Administration for Market Regulation took the lead nationwide in utilising 2D codes to establish a food safety traceability system, known as the “**Zhejiang Food Traceability Chain**” digital project. They also developed and launched the Zhejiang Provincial Food Safety Traceability Information Service Platform, referred to as the Zhejiang Food Traceability Chain System. The “Zhejiang Food Traceability Chain” digital project is not only an application project in the food industry for the building of the Zhejiang GM2D demonstration zone but also the first large-scale use of GM2D around the world.

The project aims to gradually implement 2D codes for millions of pre-packaged foods and edible agricultural products across the province. This initiative assists food-related enterprises in achieving traceability and enhancing information transparency between businesses and consumers. As of now, 1,032,000 enterprises in Zhejiang participate in the “Zhejiang Food Traceability Chain” project, including 9,238 production entities,

418,000 distribution entities, and 604,000 catering entities. In total, 45.87 million 2D codes have been issued, and 2D codes for 75.935 million batches in circulation and 164.24 million batches in procurement and storage have been scanned.

The Zhejiang Food Traceability Chain System, as the government’s food safety traceability supervision system, has a construction framework known as “One Database, One Code, One Standard, Six Ends.” This includes: One Database, which is the Zhejiang Provincial Food Safety Traceability Information Database; One Code, representing the “Zhejiang Food Traceability Chain” traceability code based on GS1 standards; One Standard, denoting the system’s data specifications and interface standards; Six Ends encompass the ZheLiBan application end, Alipay service end, WeChat Mini Programme end, enterprise PC end, government supervision PC end, and ZheZhengDing mobile end.



Figure 2 First screen of the Zhejiang Food Traceability Chain System (not real data)



Figure 3 The page of the Zhejiang Food Traceability Chain System enterprise users entering



Application Cases of Zhejiang Food Traceability Chain System

- 1. Production:** In Zhejiang Province, there are a total of 6,686 active food production enterprises, manufacturing 52,606 different types of products. As of now, 6,644 enterprises are participating in the “Zhejiang Food Traceability Chain” project with 49,849 types of products with 2D codes. For example, Zhejiang Meili Jian Dairy Co., Ltd. actively transformed its production lines to implement that 2D codes can be printed during production, and nearly 60% of its products have completed the 2D code migration process. Up to the present, they have successfully upgraded six production lines, achieved “one code for one item” coding transformation for 20 products, with a daily production capacity of approximately 400,000 products with 2D code. The cumulative coding quantity has surpassed 130 million codes.
- 2. Circulation:** The GM2D box code was extensively utilised in various aspects of the food safety assurance during the Asian Games, including in the processes of outbound and inbound logistics, sample

testing and monitoring, and cold chain logistics. The total coding quantity exceeded 2.4 million, with over 990,000 scans. A total of 728 batches of doping agents and 2,741 batches of food safety were inspected. This implementation successfully achieved automated management and seamless information exchange in various stages of the supply chain, such as sorting, warehousing, wholesale, and distribution, significantly improving work efficiency. It ensured real-time and accurate product information, reduced operational costs, and contributed to the efficiency of food safety assurance for the Hangzhou Asian Games. During the Asian Games, a cumulative total of 2,624.89 tonnes of ingredients were safeguarded, providing safe dining experiences for 3.6894 million individuals. The efforts resulted in zero food safety incidents and zero cases of doping events related to food sources. These achievements received specific commendation from Thomas Bach, the President of the International Olympic Committee, and high praise from delegations of athletes from various countries.



3. Consumption: Firstly, through the transformation and upgrade of proprietary systems at retail terminals, precise batch information recognition is achieved in the settlement process at supermarkets. This enables automatic interception of expired food, thereby improving enterprise settlement efficiency and safeguarding the legitimate rights of consumers. As of now, 7,648 supermarkets have undergone upgrades and transformations of their proprietary settlement systems, all of which have successfully implemented the function of automatic interception for expired products. Secondly, a comprehensive effort is made to create personalised 2D code mobile UI interfaces on the outer packaging of food products. Consumers can intuitively access product traceability information, “Sunshine Factory” videos, test reports, and personalised introductions of the enterprise by scanning the 2D code on the product. This effectively enhances the brand image of the enterprise and showcases product characteristics.

4. Highlights: For example, 2D codes integrate origin authentication, geographical trademark authorization certificates, and brand value introductions into traceability information. This achieves end-to-end control over the origin and quality safety, further enhancing brand value and empowering the development of local characteristic industries. Another example is that 2D codes connect with customs information, allowing consumers to easily query details such as foreign manufacturers, production country loading ports, destination unloading ports, and customs declaration information. This facilitates effective product authentication, boosting consumer trust in the quality of imported goods and brand awareness. For example, Ningbo Beilun Changhai Warehouse has established the first “General Trade Centralised 2D Code Supervised Warehouse,” equipped with specialised automated labelling equipment to expedite 2D code application speed and accuracy, saving overall costs.

Zhejiang Article Numbering Management Platform

English

GM2D Online - A 2D code can tell the whole story of one product



Product Information

Enterprise Introduction

Geographical Indication

West Lake Longjing

Brewing suggestion

Brewing suggestion

tea to water ratio 1:50
water temperature 85-90°C
brewing time 15s
proper tea set glass
brewing number 5 times
tea tureen



Implementation Effect Zhejiang Food Traceability Chain System



Enhancing brand visibility: 2D codes can augment product showcase content through website links, creating mobile UI interfaces that support the addition of brand information, company profiles, and geographical indications. This meets the promotional needs of enterprises. Additionally, companies can include quality inspection reports in the UI interface to boost brand credibility.



Expanding consumer awareness: Consumers can access a wealth of information by scanning 2D codes, enabling them to provide direct feedback and enhancing communication channels between enterprises and consumers, thereby reducing the distance between consumers and manufacturers.



Improving supply chain management: The Zhejiang Food Traceability Chain System includes upstream and downstream supply chain information, inventory details, batch information, and more. While ensuring data security, it helps enterprises with functions like inventory management, anti-counterfeiting measures, and refined marketing.



Spurring new business models: For instance, food production enterprises can embed store maps where the product is available within the 2D code, facilitating convenient “nearby search” functionality for purchases. For products not accessible in supermarkets, users can scan 2D codes to obtain purchase links, facilitating repeat purchases.

Application Cases of 2D Code

#00000001



(01)03416830535990
(10)7865461881

COMPANY NAME

- **TASTE FOOD NINGBO CO., LTD.**

PRODUCT NAME

- **DUC DE FORMONS VIN ROUGE**

HIGHLIGHTS

Regulatory personnel can achieve comprehensive risk alert and control for imported goods by scanning the code and instantly querying information about foreign wine estates, production countries, loading ports, and destination unloading ports.

Consumers can directly access essential information, logistics details, and customs declaration information for imported goods by scanning the code. This facilitates effective authentication of product authenticity, enhancing consumer trust in the quality and brand awareness of imported goods.

#00000002



(01)06932723318633

COMPANY NAME

- **Zhejiang Meilijian Dairy Co.**

PRODUCT NAME

- **Meilijian Xihu Brand Rooftop Double Probiotic Yogurt**

HIGHLIGHTS

Through GM2D “One Code for one item” technology, achieve secure anti-counterfeiting traceability for each bottle of yoghurt, enhance internal ERP data exchange efficiency, and reduce management costs.

Consumers can directly watch real-time dynamic monitoring videos, including the status of the dairy farm cows, factory processing scenes, and warehouse displays, by scanning the code. This ensures a truly reassuring and trustworthy purchase for consumers.

#00000003



(01)06976057590891

COMPANY NAME

- **Zhejiang Yueyun Piano Co.**

PRODUCT NAME

- **Yueyun Upright Piano**

HIGHLIGHTS

Consumers can scan the code to retrieve relevant information about the piano and, based on user manuals, maintenance instructions, and instructional videos, independently perform maintenance operations and more on the piano.

The UI interface includes information on nationwide piano tuners, making it convenient for consumers to search for the nearest certified tuner. This provides consumers with professional and convenient piano tuning services.

#00000004



(01)06933396800500

COMPANY NAME

- **Jinhua Weibang Food Co. Ltd.**

PRODUCT NAME

- **Jinhua Ham (Split Pack)**

HIGHLIGHTS

Consumers can directly access ham recipes and cooking methods by scanning the code, quickly mastering the essence of ham cooking.

The company showcases brand introductions and honours through 2D codes to expand corporate publicity, thereby enhancing brand image. Simultaneously, it embeds online purchase links for ham, facilitating consumers for repeat purchases and increasing ham repurchase rates.

#00000005



(01)06973350839993

COMPANY NAME

- **Zhejiang Shengshiyuanlin Technology Co.**

PRODUCT NAME

- **Backpack electric sprayer**

HIGHLIGHTS

Global consumers can enhance their consumer experience significantly by scanning the code to browse the company's domestic and international official website, accessing product quality test reports, and other information. This contributes to the increased competitiveness and credibility of the company and its products.

The company, through 2D codes, directly provides consumers with a feedback channel, legally safeguarding consumer rights.

#00000006



(01)06954972900865

COMPANY NAME

- **Zhejiang Beima Education Technology Co.**

PRODUCT NAME

- **Intelligence Play Fun Set**

HIGHLIGHTS

The company provides the quality inspection report for this toy through 2D codes, enhancing consumer confidence in the purchase. This ensures that parents buy with peace of mind, and children play safely.

The company integrates product design concepts and electronic manuals into 2D codes, making it convenient for consumers to access information about how to play with the toy.

#00000007



(01)06970117710618

COMPANY NAME

- **Zhoushan Haiwang Aquatic Food Co. Ltd.**

PRODUCT NAME

- **Frozen Pomfret**

HIGHLIGHTS

With “code” as the core element, coding is applied to Chinese geographical indication marine products, incorporating a “geographical indication” module to provide origin certification. This fully leverages the distinctive advantages of “Zhoushan Fishing Ground” renowned marine products, enhancing the product’s competitiveness in the blue market.

By scanning the code, consumers can access rich display content such as geographical trademark authorization certificates and brand value introductions. This achieves the transparency, specialisation, and intelligence of data for geographical indication marine products.



In conclusion, the Global Migration to 2D Project (GM2D) and the groundbreaking “Zhejiang Food Traceability Chain” digital project represent transformative initiatives shaping the future of commodity identification and traceability. GM2D promises far-reaching impacts on economic development, global trade, and enterprise structures. The establishment of the world’s first GM2D demonstration Area in Zhejiang, with its extensive use of 2D codes, exemplifies the province’s commitment to enhancing data interoperability, promoting international cooperation, and supporting the digital economy. The success of the “Zhejiang Food Traceability Chain” Digital Project demonstrates the power of GM2D in revolutionising production, circulation, and consumption practices, fostering transparency and trust across the supply chain. As 2D codes continue to play a central role in brand visibility, consumer awareness, supply chain management, and innovative business models, these initiatives stand as pioneering models with implications extending beyond regional borders, offering a glimpse into the future of global commerce and technology integration.



About Zhejiang Provincial Administration for Market Regulation

Zhejiang AMR is affiliated to The People's Government of Zhejiang Province, responsible for the comprehensive supervision and management of the market in Zhejiang Province, including registration of market entities, market supervision and law enforcement. And it also takes charge of coordination of product quality and food safety supervision, standardization management and intellectual property rights supervision and administration, maintain market order. Zhejiang AMR aims to create an honest and trustworthy market environment with fair competition.

About The Consumer Goods Forum

The Consumer Goods Forum (CGF) is a global, parity-based industry network that is driven by its members to encourage global adoption of practices and standards that serve the consumer goods industry worldwide. The CGF brings together the CEOs and senior management of approximately 400 retailers, manufacturers, service providers, and other stakeholders across 70 countries, and it reflects the diversity of the industry in geography, size, product category, and format. Its member companies have combined sales of EUR 4.6 trillion and directly employ nearly 10 million people, with 90 million related jobs along the value chain. The CGF is governed by its Board of Directors, which comprises more than 55 manufacturer and retailer CEOs.

For more information, please visit:
www.theconsumergoodsforum.com