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ANALYZING UNIQLO'S LEAN SUPPLY CHAIN: HOW FAST RETAILING BUILDS EFFICIENCY AND AGILITY IN GLOBAL APPAREL MANUFACTURING

Lê Thị Thuỳ Linh[1], Lương Vân Anh, Nguyễn Diệu Anh Thư, Nguyễn Quỳnh Nga, Nguyễn Minh Thư

Sinh viên K62, CLC Kinh tế đối ngoại, Viện Kinh tế và Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Nguyễn Thị Yến

Giảng viên Viện Kinh tế và Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Abstract

The study examines how Uniqlo applies lean supply chain management to improve efficiency and flexibility in the global garment industry. Using qualitative methods and case analysis of Uniqlo's operations, particularly its production network in Vietnam, the research evaluates the model's effectiveness in reducing costs, minimizing waste, and enhancing responsiveness to market changes. Findings show that Uniqlo's lean system supports just-in-time production, lowering inventory costs and ensuring timely delivery. While Vietnam serves as a key manufacturing hub with strong labor and production advantages, it faces challenges in automation, sustainability, and integration. The study concludes that further investment in technology, workforce development, and sustainable practices will strengthen Uniqlo's competitiveness and provide insights into adapting lean strategies in the apparel industry.

Keywords: lean supply chain, Uniqlo, Vietnam, apparel industry

[1] Tác giả liên hệ, Email: k62.2313150145@ftu.edu.vn

PHÂN TÍCH CHUỖI CUNG ỨNG TINH GỌN CỦA UNIQLO: CÁCH FAST RETAILING XÂY DỰNG HIỆU QUẢ VÀ TÍNH LINH HOẠT TRONG SẢN XUẤT MAY MẶC TOÀN CẦU

Tóm tắt

Nghiên cứu phân tích cách Uniqlo áp dụng quản trị chuỗi cung ứng tinh gọn nhằm nâng cao hiệu quả và tính linh hoạt trong ngành may mặc toàn cầu, thông qua nghiên cứu định tính và phân tích trường hợp mạng lưới sản xuất, đặc biệt tại Việt Nam. Kết quả cho thấy mô hình này giúp giảm chi phí, hạn chế lãng phí, hỗ trợ sản xuất đúng lúc và đảm bảo giao hàng kịp thời. Việt Nam là trung tâm sản xuất quan trọng với lợi thế về lao động nhưng vẫn đối mặt với thách thức về tự động hóa, bền vững và tích hợp chuỗi cung ứng. Nghiên cứu nhấn mạnh rằng đầu tư vào công nghệ, phát triển nhân lực và thực hành bền vững sẽ góp phần nâng cao năng lực cạnh tranh của Uniqlo và định hướng điều chỉnh chiến lược tinh gọn trong ngành may mặc.

Từ khóa: chuỗi cung ứng tinh gọn, Uniqlo, Việt Nam, ngành may mặc

I. Introduction

In a period when fashion companies are all facing increasing competition and constant elimination, the success of a fashion business depends greatly on the flexibility and efficiency of its supply chain. Uniqlo - a brand under the Fast Retailing Group - is a standout brand with a lean supply chain model, aiming to produce only what is needed, when it is needed, and in the amount needed. By adopting this strategy, the brand minimizes holding costs, reduces material wastes, and increases its ability to respond to changing market conditions - all while ensuring that products are delivered to customers in a timely manner.

The objective of this research is to analyze how the lean supply chain management of Uniqlo has contributed to enhancing efficiency and flexibility in global garment production.

Specific objectives:

- Clarify the principles of the lean supply chain management model that Uniqlo has applied.
- Analyze the key stages in which Uniqlo applies its lean strategy and evaluate the effectiveness of the model.
- Analyze the role and challenges of Vietnam in Uniqlo's supply chain and propose solutions.

This report is divided into the following sections:

- Chapter 1: Introduction
- Chapter 2: Theoretical framework
- Chapter 3: Overview of Uniqlo
- Chapter 4: Lean supply chain in Uniqlo
- Chapter 5: Challenges & Proposals for improvement for Lean in Uniqlo Vietnam

II. Theoretical framework

2.1. Supply chain

Before conducting the detailed analysis, it is essential to clarify the concept of the supply chain to establish a consistent understanding and theoretical foundation for the following sections. Christopher (1992) defined the supply chain as a network of organizations connected through upstream and downstream linkages, engaging in activities and processes that create value in the form of goods and services for end consumers. La Londe and Masters (1994) described the supply chain as a set of interconnected firms that transfer materials sequentially through production stages. Expanding on this perspective, Kumar, Singh and Singh (2011) viewed the supply chain as an integrated process in which suppliers, manufacturers, distributors, retailers, and end users collaborate to acquire raw materials, transform them into finished products, and distribute them to consumers. Similarly, Mentzer *et al.*, (2001) stated that the supply chain can be understood as a system involving three or more entities (organizations or individuals)

directly participating in the upstream and downstream flows of products, services, finances, and information from the original source to the final customer. In summary, although the definitions vary in emphasis, they collectively highlight that a supply chain is a coordinated network of multiple entities working together to create and deliver value. This understanding provides a unified conceptual basis for analyzing supply chain structures, operations, and performance in the subsequent sections of this study.

2.2. Supply chain management

Following the clarification of the supply chain concept, supply chain management (SCM) emerged as the strategic approach to planning, controlling, and integrating all supply chain activities to enhance efficiency and value creation. The term SCM first appeared in the mid-1980s. According to Cooper and Ellram, 1993, SCM is an integrative philosophy to manage the total flow of the distribution channel from the supplier to the ultimate user. That means SCM aims to manage the whole chain as one connected system to make sure the right product gets to the right customer at the right time, in the most efficient way. Similarly, The International Center for Competitive Excellence defines SCM as the integration of business processes from end user through original suppliers that provides products, services and information that add value for customers (Cooper, Lambert and Pagh, 1997). The Council of Supply Chain Management Professionals viewed SCM as "the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information flow from point-of-origin to point-of-consumption for the purpose of conforming to customer requirements (Cooper, Lambert and Pagh, 1997).

According to Cooper and Ellram (1993), SCM includes many important elements such as inventory management approach, total cost approach, time horizon, amount of mutual sharing and monitoring of information, amount of coordination of multiple levels in the channel, joint planning, compatibility of corporate philosophies, breadth of supplier base, channel leadership, amount of sharing of risks and rewards, and the speed of physical and information flows within and between entities. It lies between fully-vertically-integrated systems and those where each channel member operates completely independently. In a fully-vertically-integrated system, the functions are performed within one company (Cooper and Ellram, 1993). Monczka, Trent and Handfield (1998) stated that the primary goal of SCM is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers. Stevens (1989) pointed out that "The objective of managing the supply chain is to synchronize the requirements of the customer with the flow of materials from suppliers in order to effect a balance between what are often seen as conflicting goals of high customer service, low inventory management, and low unit cost". In term of these goals, according to Habib (2011), to promote and utilize their supply chain and provide better products for customers, companies should:

- Gain a closer understanding of their customer' and future customers' needs, both nationally and internationally
- Understand their suppliers' core competencies in meeting customer needs

- Determine where redundancies and inefficiencies lie within the supply chain in relation to current and future competitive needs
- Develop relationships and alliances with suppliers who have key competencies that strengthen, supplement, and enhance internal core competencies nationally and internationally.

2.3. Lean supply chain

In today's globalized business environment, manufacturing firms are encountering numerous challenges, as their supply chains have become increasingly complex, extended, and difficult to manage (Rudberg and Olhager, 2003). There onwards, few researchers have participated in the research of LSC and have come out that lean principles can be used to improve SCM from manufacturing to the logistics operations by improved responsiveness to demand variations and reduced operating cost (Jasti and Kodali, 2015).

The concept of *lean* was initially coined by Krafcik (1988) in the context of the International Motor Vehicle Program at MIT, where he characterized the Japanese production system as *lean* due to its capacity to produce more value with fewer inputs. According to Manrodt (2008), Lean is understood as a systematic methodology aimed at increasing customer value by identifying and removing waste - including wasted time, effort, and materials - while continuously improving processes. It emphasizes producing only in response to customer demand and strives toward achieving operational perfection (Erdogan and Sezen, 2009). Abbott et al (2006) defined that a lean supply chain refers to a network of organizations connected through the forward and backward movement of goods, services, finances, and information. These organizations work together to minimize cost and eliminate waste by efficiently and effectively supplying only what is required to satisfy each customer's specific demand. This strategic decision to implement the lean production system is a managerial approach, but it affects from the top to the bottom in every stage of work, because the lean principles enable the employers to have the authority (Erdogan and Sezen, 2009).

Also in this research, Erdogan and Sezen (2009) pointed out that the key feature of a lean supply chain is its ability to deliver precisely what customers require, at the desired location and time, while ensuring high quality and keeping costs to a minimum. Lean provides a set of tools and an operating philosophy that provides a structure for thinking beyond the short term. The emphasis on waste and cost reduction is holistic, and should not be limited to a single partner in the supply chain (Erdogan and Sezen, 2009). Viewed Lean supply chain as "a group of individuals, functions, and legally separate but operationally synchronised companies", Womack and Jones (1994) found out that this group's mission is collectively to analyse and focus on a value stream so that it does everything involved in supplying a good or service in a way that provides maximum value to the customer. Lean supply chain also aims to eliminate the duplication of effort and capability in the supply chain, combined with a philosophy of continuously increasing the expectations on performance and self-imposed pressure to excel which can be achieved by recognition of mutual dependence and common interest between customer and supplier beyond the principle of operational collaboration (McIvor, 2001). Accordingly, this study adopts a stage-based lean supply chain analysis within Uniqlo in which

core lean principles such as waste elimination and coordination across stages are applied across key supply chain stages, including demand planning, production, inventory and logistics, and retail operations.

III. Uniqlo overview

3.1. Brief history and global scale

Uniqlo is a clothing apparel company founded in Yamaguchi, Japan in 1949 as a textiles manufacturer, and has grown into a global brand. After Tadashi Yanai inherited his father's 22 men's tailoring stores in 1972, he opened a new store in Hiroshima in 1984, added women's clothing, and rebranded the business as Unique Clothing Warehouse, later shortened to Uniqlo.

Inspired by his travels to Europe and the US, where he discovered large casual apparel chains like Benetton and Gap, Yanai saw great potential in Japan's casual wear market and shifted the company's strategy from suiting to casual clothing, buying fashion goods in bulk at low cost and adopting a vertically integrated model.

Initially, Uniqlo was seen as a discount retailer selling cheap and low-quality apparel to the suburbs. However, this perception completely changed when the brand transformed its image with the Global Quality Declaration in 2004, committing to stop producing low-quality garments. The brand perception instantly shifted from being cheap and low-quality, to being affordable but high-quality.

Today, Uniqlo is not only a Japanese fashion icon but has also risen to become a "heavyweight" competitor in the international arena, competing with famous names such as H&M and Zara. With an ambition to conquer the position of the world's largest clothing brand, Uniqlo is constantly focusing on expanding in strategic markets such as the United States, China and also on e-commerce platforms.

Since opening its first store in Hiroshima, Japan in 1984, Uniqlo has grown to over 2,500 retail stores in 26 countries and territories worldwide. Fast Retailing Group, the parent company of Uniqlo, recorded a record operating profit of 564.3 billion yen, driven by strong growth in North America and a historic milestone in Japan.

Continuing its mission to "transform the concept of clothing", Uniqlo maintains its distinct identity through high-quality basics, innovative technologies, and collaborative collections with renowned designers, contributing to strengthening its global reputation

3.2. LifeWear philosophy

LifeWear is a unique philosophy of value for clothing initiated by Uniqlo, rooted in the belief that careful consideration of function and design, combined with modern production processes and constant innovation, will create high-quality clothing at reasonable prices that can meet all the needs of everyone. Uniqlo products are made to serve everyone, overcoming all limitations of race, age, origin, religion, disability, gender. The brand also affirms that its clothing is a "tool" that contributes to improving the quality of life of consumers.

This philosophy emphasizes how Uniqlo views the world in general and plays a role in guiding the brand in all activities:

Product development strategy: LifeWear focuses on meeting the consumers' practical needs and everyday functionality. Uniqlo's clothes are often minimalistic but still sophisticated in design, making them easy to mix and match with any style, from youthful and dynamic to elegant and mature and suitable for everyone. Moreover, the brand focuses on improving technology in each product. Uniqlo's special technologies such as HEATTECH, AIRism, Ultra Light Down,… are developed based on scientific research on materials, climate and consumer behavior to optimize performance while bringing comfort and convenience to the user. For example, the HEATTECH line uses heat retention technology based on the reaction of absorbing moisture to convert into heat, allowing the clothes to be thin but still keep warm well. Each product is integrated with technology to enhance the user's experience, both meeting fashion needs and taking care of customers' health.

Brand building: LifeWear makes a difference by changing the way consumers perceive fashion. Instead of encouraging short-term consumption, following trends like fast-fashion brands such as Zara or H&M, Uniqlo aims for products with a long life cycle, high quality, easy-to-wear designs that do not go out of style over many years and are suitable for real needs. This philosophy helps the brand build a reputation for offering premium quality products at reasonable prices, which helps the brand attract the middle class and sustainability-conscious consumers.

Vertical integration: Uniqlo strictly controls the entire process in its value chain, from design, material research, production to distribution. This helps the company ensure consistent quality, reduce intermediary costs and maintain competitive prices. Uniqlo's flagship stores around the world such as in Tokyo, New York and Paris are designed in a unified way, clearly expressing the LifeWear philosophy in the store space, helping customers to directly experience the value of "simple made better".

Sustainable development strategy and social responsibility: To pursue sustainable growth, Fast Retailing has established environmental policies, applying technologies to reduce the burden on the global environment. With this policy, the company has put climate change as one of the most urgent issues and is taking action to achieve carbon neutrality by 2050. Uniqlo is promoting the use of renewable energy, increasing the proportion of recycled materials to 50%, moving towards "zero waste", while ensuring transparency, human rights and fair working conditions in the supply chain. In addition, the company is expanding its global social contribution, supporting 10 million people by 2025 and promoting diversity and inclusion, aiming for 50% female managers by 2030. Uniqlo stores worldwide also organize the collection of used garments at its stores. The main purpose is to recycle, protect the environment and donate clothing to refugees and homeless people. These activities not only strengthen the brand's humanitarian image but also turn LifeWear into a global movement for sustainable living, rather than a marketing strategy.

By tightly controlling the entire value chain - from design, production to distribution - Uniqlo not only maintains quality and competitive costs but also forms a lean, low-waste operating

system. This serves as the foundation for realizing the LifeWear philosophy through a lean management mindset.

3.3. Semi-vertical integration model

Uniqlo applies a semi-vertical integration approach, in which the company tightly controls key strategic stages of the value chain such as design, research and development, raw material procurement, production management, distribution, and retailing, while manufacturing is carried out through a network of partner factories. This model is described by Fast Retailing as the "comprehensive management of clothing design and planning through production, distribution and retail", meaning strategic control while outsourcing production. In this model, UNIQLO takes control of the stages that directly affect product quality, supply speed and customer experience. The controlled stages include:

- Design and material development: Activities related to identifying customer needs, product design, material selection, and the development of technologies such as HEATTECH, AIRism, Ultra Light Down, and UV Cut are conducted internally through Fast Retailing's merchandising department and R&D centers. These R&D centers research customer needs and emerging trends. During the research process, they continuously collect customer feedback to develop products that meet user demands and fit local climate conditions, lifestyles, and consumption behaviors, ensuring that products are both scientifically advanced and highly practical. In addition, Uniqlo collaborates with Toray Industries - a leading fiber manufacturer - to develop exclusive fabrics and technologies, thereby maintaining quality control from the raw material stage.
- Production and quality control: Uniqlo does not directly own production factories but outsource the production of most products to partner factories in mainland China, Vietnam, Bangladesh, Indonesia, and India. They have built strong relationships of trust with their partner factories over many years, and hold annual conferences to facilitate frank dialogue with factory managers. To control the process and ensure product quality, Uniqlo has established production offices in Shanghai, Ho Chi Minh City, Dhaka, and Jakarta to oversee these partner factories. These offices send technical experts to each factory to inspect and ensure compliance with standards for quality, schedules, and labor ethics.
- Inventory control: Uniqlo controls inventory and improves management efficiency by providing inventory that reflects each store's sales and product performance. Product data throughout the supply chain is synchronized through RAIN-RFID tags added to each product. Once products have RAIN RFID tags, RAIN RFID readers can accurately obtain specific information about the products anywhere in a warehouse, distribution center, or store. This data can include item location, quantity, model, color, size, and more. Throughout each step, RAIN RFID helps Uniqlo manage inventory from production to distribution to the sales floor, allowing managers to predict inventory needs, dispatch inventory to fulfill orders, and maintain appropriate inventory levels. Moreover, Uniqlo tightly controls distribution and logistics operations by using RFID data and real-time sales data to optimize the movement of goods from factories to

stores, which helps shorten replenishment times, ensure product availability in high-demand areas, and limit supply chain delays. This technology also helps managers identify and maximize most popular items, and use real-time inventory data to support employees and customers.

- Retail and feedback loop: Uniqlo directly controls its downstream retail and store operations, which allows it to standardize store layouts, customer service processes, and in-store product presentation. In addition, Uniqlo uses the retail system as a channel to continuously collect customer feedback, through data from the POS system, RFID, app reviews and information from direct staff at the store. This real-time data is transmitted directly to R&D, planning and production departments, forming a closed feedback loop to refine products and accelerate the decision-making process.

Uniqlo's semi-vertically integrated model enables close control and coordination of key and outsourced operations, balancing cost efficiency, speed, product consistency, and adaptability. Consequently, the company has built a comprehensive lean supply chain that minimizes waste, shortens lead times, and enhances responsiveness in the global apparel industry.

IV. Lean Supply Chain Analysis in Uniqlo

4.1 General Supply Chain Structure

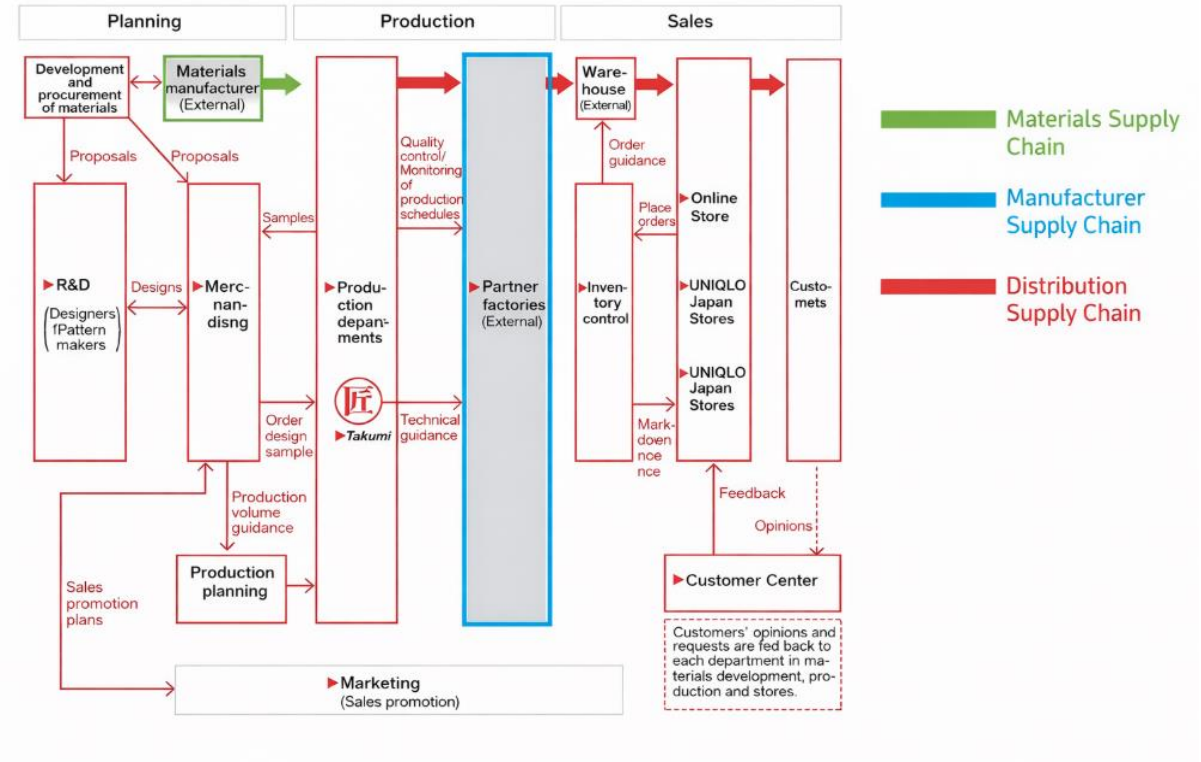

Figure 1: Uniqlo's Supply Chain

Source: Emiliametry.com (UNIQLO Supply Chain)

Uniqlo, operated by Fast Retailing Co., Ltd., manages a globally integrated supply chain under a model of semi-vertical integration, as illustrated in Figure 1. Within this structure, Uniqlo retains full control over the planning stage, including R&D, product design, merchandising, production planning, materials development, and quality monitoring, while physical manufacturing is outsourced to external partner factories located across Asia, notably in Vietnam, China, Indonesia, and Bangladesh (Fast Retailing, 2023). The supply chain follows a clearly coordinated flow from materials suppliers to partner factories, external warehouses, distribution channels, retail stores, and customers. Despite the use of external actors, Uniqlo centrally controls production schedules, technical guidance, inventory management, and order allocation, ensuring that both material and information flows remain integrated and stable throughout the chain.

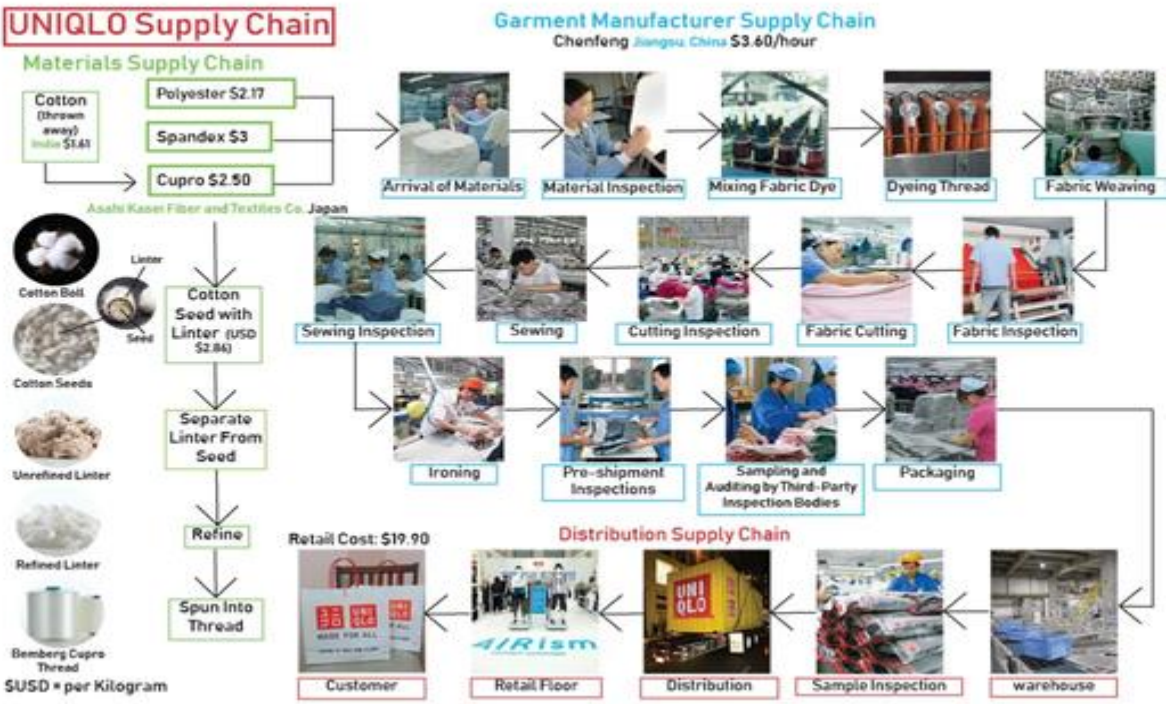

Figure 2: UNIQLO Supply Chain Flow: From Raw Materials to Global Distribution

Source: Emiliametry.com (UNIQLO Supply Chain)

Figure 2 further demonstrates how Uniqlo's supply chain embodies Lean Supply Chain Management principles through tight control of upstream materials and standardized manufacturing processes. Uniqlo works closely with selected raw material suppliers, overseeing processes from fiber selection and yarn spinning to fabric weaving and dyeing, with multiple inspection points embedded across production stages. At the garment manufacturing level, partner factories operate under Uniqlo's technical supervision, with in-line inspections, pre-shipment inspections, and third-party audits incorporated into the workflow. This design emphasizes defect prevention, process stability, and continuous quality monitoring, reducing rework, excess inventory, and waste, which are core objectives of lean supply chains rather than speed-driven fast-fashion models (Tokatli, 2020).

At the downstream end, both figures highlight a lean-oriented distribution and feedback system. Finished goods move from manufacturing partners to warehouses and distribution centers before being allocated to online platforms and physical stores, while inventory control and order guidance remain centrally managed by Uniqlo. Customer feedback collected through retail channels and customer centers is systematically fed back into materials development, production planning, and store operations, forming a closed-loop information flow. In this context, Vietnam plays a dual role as both a key manufacturing location and a regional distribution hub via the Binh Duong Distribution Center, supporting domestic stores and regional exports across Southeast Asia (Nikkei Asia, 2022). This integrated production-distribution configuration reinforces flow efficiency, minimizes mismatches between supply and demand, and positions Vietnam as a strategic node in Uniqlo's lean supply chain across the Asia-Pacific region.

4.2. Lean Implementation Across the Supply Chain

Uniqlo's Lean strategy is not uniformly applied across all supply chain stages; instead, it focuses on the most impactful nodes for improving flow efficiency and waste minimization. Four key stages reflect Uniqlo's application of Lean principles:

4.2.1. Demand Forecasting - Data-Driven Demand Synchronization

Uniqlo employs a real-time demand forecasting system powered by Point of Sale (POS) data collected across its global store network. Rather than relying on seasonal or quarterly projections, this system updates sales data daily and synchronizes it with headquarters and regional coordination centers (Fast Retailing, 2023).

This enables the company to identify best-selling products, manage replenishment cycles, and adjust production schedules almost instantaneously. The "store-to-headquarters" communication model significantly reduces the bullwhip effect, a phenomenon in which demand variability amplifies across supply chain tiers (Womack and Jones, 2003).

In Vietnam, Uniqlo stores in Ho Chi Minh City, Hanoi, and Da Nang are digitally linked to the regional headquarters in Singapore, allowing replenishment shipments from the Binh Duong DC within 24 - 48 hours (Uniqlo Vietnam, 2024).

In this factor, lean supply chain indicators can be seen in the reduced demand-supply mismatch; continuous, transparent information flow, and lower inventory and improved responsiveness.

4.2.2. Production (Supplier/Factory) - Lean Manufacturing and Kaizen at Partner Factories

Uniqlo's strategic manufacturing partners in Vietnam include TNG Thai Nguyen, Nobland, Viet Tien Garment, and Crystal Martin, all of which apply the Lean Manufacturing System emphasizing waste reduction (muda), continuous improvement (Kaizen), and Just-in-Time (JIT) production (TNG, 2023).

The Takumi program, developed by Fast Retailing, deploys Japanese production experts to train factory teams in Lean techniques, process optimization, and quality control. For instance, the Takumi project at Nobland Vietnam reportedly achieved an 18% reduction in changeover

time and a 12% productivity increase after six months of implementation (Fast Retailing, 2023).

Uniqlo's Lean application goes beyond cost efficiency to pursue process stability and quality consistency. Partner factories often adopt cellular layouts, promoting smooth material flow and team-based communication. Additional Lean tools such as 5S, Kanban, and Andon systems help monitor quality, prevent errors, and ensure rapid response to production issues.

Lean indicators in this case can be seen through reduced waste and defects, improved production flexibility that allows the system to respond quickly to demand fluctuations, and the maintenance of stable quality standards across all facilities. These factors all together demonstrate the effectiveness of lean practices in operations and ensuring consistent performance of Uniqlo.

4.2.3. Inventory Management - Lean and Cross-Docking Logistics

Uniqlo applies a Lean inventory strategy built around cross-docking, where products move directly from factories to distribution centers and quickly onward to retail stores, minimizing long-term storage (Nikkei Asia, 2022).

At the Binh Duong Distribution Center, a Warehouse Management System (WMS) integrated with the corporate ERP platform tracks inventory in real time. RFID tagging enables precise product identification and reduces handling time by up to 30% compared to conventional methods (Uniqlo Vietnam, 2024).

Uniqlo stores also operate under a just-in-time replenishment system: once stock levels fall below a defined threshold, automated replenishment orders are generated and fulfilled without manual intervention. This minimizes stockouts and outdated inventory while maintaining high in-store availability.

Reduced warehousing and obsolescence costs, a continuous product flow with minimal bottlenecks, and transparent inventory data management have reflected the lean supply chain of Uniqlo, which enables faster, more accurate decision making processes.

4.2.4. Retail Operations - Lean and Standardized Store Management

At the retail level, Uniqlo applies Lean principles in store design, operational processes, and workforce management. Store layouts are minimalist and designed to facilitate smooth customer flow and efficient restocking. Employees are multi-skilled, capable of performing various roles, thereby reducing idle time and improving operational efficiency (Yagi and Abraham, 2021).

Daily sales data automatically update in the ERP system, triggering replenishment orders from the Binh Duong DC, ensuring inventory alignment with real-time demand. Furthermore, the visual merchandising system is globally standardized, minimizing setup time and ensuring consistent brand presentation.

This Lean approach enhances operational productivity, reduces costs, and supports rapid expansion without compromising store performance (Fast Retailing, 2023).

The evidence of lean supply chain management can be witnessed in the reduction of in-store operational waste, the implementation of standardized and scalable processes, and the presence of faster customer feedback as well as quicker replenishment cycles. These factors signal an effective, responsive retail operation aligned with the lean principles that Uniqlo has been following.

4.3. Evaluation

The application of a lean supply chain has generated significant outcomes for Uniqlo in operational efficiency, market responsiveness, and financial optimization. Streamlined supply chain processes enable faster inventory turnover than most traditional fast-fashion competitors. According to Lan (2024), near-complete control over design, procurement, production, distribution, and sales significantly reduces drivers of the bullwhip effect, such as forecast updates and supply constraints. Effective inventory control also lowers warehousing costs and markdown losses, helping maintain stable profit margins in an industry highly exposed to inventory risk. Moreover, lean operations enhance Uniqlo's ability to match actual demand, reduce forecast errors and stock-outs, and improve order fulfillment and customer experience. Financially, these practices contribute to consistently high and stable gross margins, allowing Uniqlo to avoid heavy reliance on aggressive discounting.

However, some drawbacks still exist with the system. It relies heavily on data synchronization with tight coordination, making it increasingly susceptible to unexpected disruptions caused by logistics shocks or incorrect forecasting due to extraordinary events. Moreover, the strong emphasis on cost efficiency and inventory minimization may at times conflict with the need for greater resilience or strategic buffer stocks, especially in an era marked by geopolitical uncertainty, climate-related disruptions, and volatile demand patterns.

Overall, Uniqlo's lean supply chain is more durable and efficient in the long term, delivering lower operating costs, stronger cash flow, reduced inventory risk, and competitiveness based on quality rather than short-term fashion cycles. These advantages support Uniqlo's continued overseas expansion without sacrificing profitability.

V. Challenges and proposal for improvements for lean in UNIQLO Vietnam

5.1. Vietnam's position in Uniqlo's lean supply chain

Vietnam plays an important role as a manufacturing and supply hub in Uniqlo's global lean supply chain. Uniqlo is the brand that represents the Fast Retailing Group, following a lean production model that reduces waste, unnecessary costs in operations and helps optimize efficiency by building and developing win-win partnerships with partner factories instead of direct investment. Uniqlo outsources the production of most products to partner factories in mainland China, Vietnam, Bangladesh, Indonesia, and India. Among these, Vietnam is also one of Uniqlo's strategic manufacturing hubs with 80 factories and 240,000 workers, along with China, Bangladesh, and Indonesia, thanks to its advantage of lower labor costs as well as high production capacity.

Vietnam's geographical position has further highlighted its important role in Uniqlo's JIT logistics model. Located in Southeast Asia and bordered by many sourcing markets such as China and Japan, Vietnam provides significant logistical and supply chain advantages, which allows Uniqlo to shorten delivery time and transportation time to the world. This support helps Uniqlo synchronize and coordinate supply with the market demand of each location in real time and reduce inventory levels in global markets.

In summary, Vietnam serves as a core manufacturing link in Uniqlo's lean supply chain - contributing to cost efficiency, production flexibility, and supply chain resilience, while still facing operational constraints that require strategic improvements.

5.2. Challenges

Although Vietnam plays an important role in Uniqlo's global supply chain, it still faces many challenges and difficulties in meeting lean supply chain standards in local production and logistics processes. The core reasons for this issue mostly come from gaps in technological application capability, management skills, and the level of coordination within the supply chain.

5.2.1. Differences in management capabilities among partner factories

Although Uniqlo has implemented the Takumi program to support partner factories in improving processes and adopting Lean thinking, the level of Lean implementation at Vietnamese factories still shows significant differences. Some factories are familiar with Japanese management methods, have well-trained supervisors, and have experience implementing Lean tools such as 5S, Kaizen, or standardized work. In contrast, many other factories still operate under traditional models, relying on the personal experience of line managers or team leaders, making it difficult to apply Lean tools that require data, standardized processes, and strong operational discipline. Limitations in internal training capability also make Lean maintenance inconsistent: it is applied well only when Takumi experts are present, but becomes less effective when handed back to the local management team.

As a result, there are large gaps between factories in process improvement speed, waste reduction capability, quality control, and maintaining stable productivity. "There is no easy way to build large-scale factories to replace the facilities in China, where we have many years of experience. Factories in Vietnam cannot be as good as those in China, unless a large number of Japanese personnel are sent," the CEO of Fast Retailing explained (Nikkei Asia, 2022).

5.2.2. Limited digitalization and automation capability at Vietnamese factories

Vietnamese factories still face many challenges in technological transformation and production process innovation. According to Intech Vietnam, survey results on Industry 4.0 readiness show that Vietnamese textile enterprises are still at a relatively low average level, with an average score of only 2.59/5.

First, investment costs are high. The process of investing in automation requires large capital, which is difficult for small and medium-sized enterprises, which make up the majority of Vietnam's textile sector.

Second, there is a shortage of high-quality labor. Transitioning to automation requires a workforce with advanced technical skills. However, most workers in Vietnam's textile industry are not yet equipped with the necessary technological skills to operate and maintain automated systems.

5.2. Recommendations

As Uniqlo expands in Vietnam, an emerging market with growing retail sophistication, adapting and strengthening Lean practices can enhance both responsiveness and efficiency. To help this, these four strategic recommendations, real-time inventory visibility, vendor-managed inventory, Quick Response production, and standardized store operations, can be applied.

First, Uniqlo can significantly enhance its operational effectiveness by implementing Real-Time Inventory Visibility (RTIV) systems. RTIV enables continuous monitoring of stock levels across stores and distribution centers, thus reducing stockouts, overstocks, and replenishment delays. This capability aligns with Lean's principle of eliminating waste from excess inventory and waiting time. In Vietnam, many retailers have begun investing in digital technologies to monitor inventory in real time, enhancing stock visibility and operational efficient (VietnamPlus, 2023). For Uniqlo, introducing RTIV would strengthen demand responsiveness, enabling the company to ensure product availability in line with rapid fashion cycles.

Second, Uniqlo should expand the use of Vendor-Managed Inventory (VMI) with local and regional suppliers. VMI shifts responsibility for replenishment from the retailer to the supplier, reducing administrative tasks, shortening order cycle times, and stabilizing supply chain flows. These benefits support Lean's aim of reducing overburden and unevenness across operational processes. For Uniqlo, strengthening VMI partnerships in Vietnam would allow fabric and garment suppliers to respond more efficiently to consumption patterns, thereby shortening lead times and improving production agility.

Third, adopting Quick Response (QR) production through nearshore manufacturing partners presents a strategic opportunity for Uniqlo. QR production is a supply chain strategy that emphasizes frequent, small-batch production informed by real-time sales data, thereby reducing the risks associated with forecasting errors and promoting inventory accuracy (Anbernathy, Dunlop, Hammond & Weil, 1999). In Southeast Asia, although specific data on Quick Response (QR) adoption are limited, manufacturing facilities in Vietnam and Indonesia show strong potential due to their substantial apparel-production capacity and strategic role in global garment supply chains (Mc Kinsey, 2025; VinMake, 2025). For Uniqlo Vietnam, expanding QR partnerships in the region could support Lean's core objective of reducing cycle times while enabling a pull-based replenishment system for high-demand products, thereby enhancing responsiveness and operational efficiency.

Fourth, Uniqlo can enhance in-store operational efficiency by implementing standardized work routines, a foundational Lean tool. Standardized work involves documenting the optimal method for performing each task and ensuring its consistent application. This reduces variability, prevents errors, and facilitates continuous improvement (kaizen). In Vietnam, many retailers are increasingly investing in automation and digital technologies to standardize in-store operations and improve efficiency. According to OpenGov Asia (2025), a large proportion of retailers believe mobile devices and AI tools help frontline staff manage tasks

more effectively, such as checking prices and inventory. Market research by IMARC Group (2024) forecasts rapid growth in Vietnam's retail automation, with AI, RFID, and automated checkouts driving efficiency. For Uniqlo, adopting standardized, technology-enabled store operations can reduce process variability, eliminate non-value-added tasks, and support Lean's principles of continuous improvement.

Finally, Uniqlo may reinforce these operational improvements by integrating advanced demand forecasting analytics. Predictive models based on machine learning enable more accurate identification of consumption patterns, thereby reducing overproduction and facilitating Lean's principle of pull-driven planning. In Vietnam, several retailers are increasingly deploying analytics and AI to improve demand forecasting and inventory management (Astute Analytica, 2025). By leveraging similar tools, Uniqlo can better align production with real customer demand, reducing obsolescence and stock imbalance.

In conclusion, as Uniqlo deepens its presence in Vietnam, adopting enhanced Lean practices offers a pathway to greater efficiency, responsiveness, and competitive advantage in a fast-evolving retail landscape. Real-time inventory visibility, VMI partnerships, QR production, standardized work, and advanced forecasting collectively reinforce Lean's central aim of delivering value while minimizing waste. These strategies are feasible within Vietnam's increasingly modernized retail ecosystem and reflect best practices already demonstrated in comparable emerging markets. Strengthening Lean implementation will position Uniqlo to thrive within the dynamic environment of fast-fashion retail in Southeast Asia.

VI. Conclusion

Uniqlo's global success is strongly linked to its LifeWear philosophy, semi-vertical integration, and the consistent application of lean supply chain management. From design, R&D, and production planning to quality control, distribution, and retail, Uniqlo has successfully built a lean and efficient supply chain that helps reduce waste, optimize inventory, and enhance responsiveness to market fluctuations. The integration of technology, long product life cycles, real-time demand forecasting, and automation technologies such as RFID plays a crucial role in enabling Uniqlo to maintain consistent quality and high operational efficiency on a global scale.

Within this supply chain model, Vietnam holds a prominent position as one of Uniqlo's most important manufacturing hubs, benefiting from competitive costs, a large labor force, and its geographical proximity to key material sources. However, the production system in Vietnam still faces certain limitations, including variations in management capabilities across factories, inconsistent levels of lean implementation, and relatively low levels of automation and digitalization.

Overall, Uniqlo's lean model provides sustainable competitive advantages, but to fully leverage the potential of Vietnam, there is a need to strengthen training, invest in technology, and standardize management practices across suppliers. These improvements will help ensure consistency, reduce waste, and enhance Uniqlo's competitiveness within the global supply chain.

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