# A Case Study on Potential Disruptive Innovations in Li and Fung

Rohaan Bhojwani

American School of Bombay SF-2, G Block, Bandra Kurla Complex Road, Bandra (E), Mumbai-51 rohaanbh@gmail.com

Abstract: For the past five years, massive supply chain management company Li and Fung have been posting declines of around 20% in operating profit, despite predictions that it would have achieved exponential growth. However, Li and Fung have a potential disruptive innovation that could return them on this predicted path. In this case study, the reasons for Li and Fung's decline will be analysed, along with their new disruptive innovation, the defensibility of the innovation, targeted market, and deployment strategy. Using Clayton Christensen's disruptive innovation theory as a guide, this paper uses public data of potential markets for Li and Fung, Li and Fung statistics, and exclusive interviews with high-level executives from Li and Fung to analyse the potential of this innovation. The innovation discussed is Li and Fung's new innovation lab, which cuts supply chain timing by ~65% by digitising Li and Fung's analogue processes, and the new market Li and Fung aims to deploy this is Indie Brands. This case study aims to highlight different analyses of data which may not have been previously available in order to help reach a conclusion of the potential disruption this innovation possesses

On a cool December morning in 2020, William Fung arrived at 888 Cheung Sha Wan and took a moment to notice the Li Fung Tower. The tower stretched over a block, a testament to the growth of the company since he joined the family business in 1973, and how small the company was compared to now. William Fung, the group manager of Li and Fung, a trading company, reminisced not only of his entrance into the business, but the businesses peak in 2014, where the turnover for the group was ~\$19 billion, excluding global brands (Li & Fung remains stable after creation of Global Brands, 2021). Throughout Li and Fung's existence, it has consistently been growing, in the 2000's almost to an exponential amount. However, since then Li and Fung have been struggling, and this is for a few reasons.

Since 2014, L&F apparel's division has faced a number of challenges, which has been evident in a series of financial statements/warnings. Post the peak in 2014, Li and Fung's profits had started to fall quickly. This was visible in 2016 where Li and Fung had to sell its subsidiary of LF Asia Distributed to the conglomerate Dah Chong Hong (Staff, 2021). Despite this, the company had a decrease of 47% in profits in 2016 (2021). Because of this Li and Fung was removed from the Hang Seng Index in 2017. In 2018 core

operating profit declined 20% (Li & Fung profits fall 20%, 2021). In 2019, Li and Fung believed that it was important that they restructure their business without the pressure of appeasing shareholders. Therefore, Li and Fung privatized LF Logistics with a Singaporean investing company, Temasek Holdings, with Li and Fung holding the majority of the shares (Staff, 2021). In 2019, Li and Fung had a profit decrease of ~20% (Li & Fung Announces 2019 Annual Results - Li & Fung, 2021). However, what caused this fall, and what exactly can save Li and Fung?

One of the major reasons for these challenges in the apparel divisions has been due to the rise of ecommerce and the closing of specialty and department stores which has hurt their middle man position. Li and Fung mainly runs as the middleman in a supply chain, supplying buyers with the thousands of sellers in their network, however, for the past few years, certain innovations threatened Li and Fung's middleman position. The major reason is the rise of e-commerce and the decrease in specialty and department stores. E-commerce sites like Amazon or Alibaba alleviate the need for a middle man, as sellers can post on the websites which have a large consumer base, therefore, reducing the need for Li and Fung's middleman services. E-commerce sites have also been a factor in the closing of specialty and department stores retailers, Li and Fung's biggest customers. For example, Ascena Retail Group, an LF customer, who owns Ann Taylor and Lane Bryant filed for bankruptcy (2021). E-commerce harms these retailers as more customers are shopping from a greater variety online, rather than going to a department store with less variety than what they can get at home. In order for Li and Fung to survive, it must find a way to make customers require its position as a middle man, and Li and Fung's sweater vertical Cobalt has launched a project to help secure that position.

One way that L&F is trying to approach these threats is by becoming the fastest channel to test and manufacture apparel – enter the innovation lab. This innovation lab would allow L&F to target the long tail of demand. Cobalt, Li and Fung's sweater vertical, has been developing an Innovation Lab for digital sampling. This focuses mainly on digital sampling, which essentially allows customers and Li & Fung to create samples of their clothing on a PDF, rather than having to create samples in real life every time there is a minor edit. Li and Fung also have very good connections with factories, which can allow brands with Li and Fung to create small-batch orders. This allows Li and Fung to target new markets of smaller stores- like indie brands. Using these features, Li and Fung could potentially decrease their supply chain time as compared to customers going directly to factories making them a necessary middleman. This new innovation and its strategy need to be analyzed in order to understand the potential of its possible disruption. In order to do this, Li and Fung and its recent issues must be analyzed to see if the innovation addresses these issues.

#### 1. HISTORY AND BACKGROUND

#### The Founding Story

The trading company Li and Fung has dealt with change and disruption since its birth in Guangzhou in 1906. Opium trader Fung Pak-Liu and local merchant Li To-Ming started Li and Fung as an export trading company (Our history - Li & Fung, 2021). They started as a broker for the US and Europe to access Chinese goods, Li and Fung were like a translator for the western markets to negotiate with locals. These goods were typical Chinese crafts like porcelain and fireworks (McFarlan, Kirby and Manty, 2006).

When Japan invaded China in 1937, Li and Fung were forced to move to Hong Kong, like most of the businesses of the area. Li To-Ming exited the company in 1946. In 1949, the Communist takeover of China and subsequent embargo in 1951 led Hong Kong to start manufacturing goods. Li and Fung, now based in Hong Kong, took advantage of this and started exporting these Hong Kong-made products to the western markets. These products were cheap toys, wigs, and textiles (Our history - Li & Fung, 2021).

#### Modernizing & The Pass Off of Generations

The modernization of Li and Fung occurred when thirdgeneration William and Victor Fung returned to Hong Kong

The Soft \$3

from the US and helped take the company public in 1973 on the Hong Kong Stock Exchange (William K.L. Fung - Alumni - Harvard Business School, 2021).

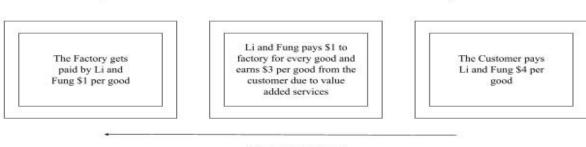
Both Victor and William are highly educated in economics and business. Before Victor returned home, he received a Ph.D. from Harvard Business School (HBS) for business economics and was a Professor of Finance at HBS. William returned home with a degree in electrical engineering from Princeton, and an MBA at HBS (2021).

In 1979, China opened its borders and allowed companies to export and access Chinese products (2021). Due to this Li and Fung changed their strategy from exporting more expensive Hong-Kong goods to exporting labor-intensive goods from China to ship to more developed nations, like the US(McFarlan, Kirby and Manty, 2006).

#### Li and Fung and the modern middle man

When Li and Fung started, its main goal was to export Chinese handicrafts (Our history - Li & Fung, 2021). Li and Fung then morphed to connect buyers from the West and sellers from the East, for a small fee. However, Victor and William aimed to make Li and Fung an indispensable mediary for the buyers and sellers. Li and Fung maximized their role as a middle man by providing services for the buyer that could not be delivered if buyers went to factories directly. These included product planning, design services, quality control, export documentation, logistics, and IT. Li and Fung's services were very useful that several big brands like Kohl's or Victoria's Secret would go through Li and Fung (Hong Kong's Li & Fung plots future as global supply chain frays, 2021).

As L&F established their middle man position, they began to go after additional value-add services to increase profits. Li and Fung's US market for buyers was ~70% of their total buyers, and Li and Fung wanted to implement their valueadded services into their biggest market first. This strategy was known as 'Eating into the soft \$3.' (McFarlan, Kirby and Manty, 2006)



Movement of Products and Services

Movement of Money

Due to adding more services, Li and Fung could charge higher margins and earn more profits. When Li and Fung increased quality control, made logistics more seamless, or became the middleman for more factories, it can charge more to customers. For example, when Li and Fung started to automatically integrate their logistics with the customer's program, they were able to charge more as this added service provided efficiency. From Li and Fung's perspective, making themselves more and more indispensable would allow them to increase margins, to a soft \$4 for example. From a simple broker and translator, Li and Fung became a profit maximizer in the middleman position (McFarlan, Kirby and Manty, 2006).

#### Li and Fung's Asset Light Model

In 2013, Li and Fung had a three department model: trading, distribution, and logistics. Trading provided sourcing to LF's customers, distribution as the wholesaler, and logistics is the organization of the journeys between distributors and customers. Li and Fung had 68 offices around the world (McFarlan, Kirby and Manty, 2006). Li and Fung has survived for over 115 years, and William Fung, the group deputy chairman of the Fung Group and third-generation Fung, believes that Li and Fung's structure and core have allowed this.

In interviews with William Fung, William Fung states that Li and Fung's success has been due to one major reason, their asset-light approach. When William Fung came back to help modernize Li and Fung, he was told that HK was too expensive to make products in, as the modernizing of Hong Kong led to the cost of living and wages to rise. Its growth was the reason for its downfall- 'the arbitrage of wages' as Fung puts it. Therefore, LF decided to place an office in Taiwan, but once they set up, Taiwan's worker wages were already too high. LF put an office in The Philippines and the same thing happened. Therefore, Fung realized that the approach of moving countries every ten years was expensive and limiting. Hence, their assetlight approach. LF is a provider of goods, yet it does not own any factories. It connects the buyer and the seller and provides services to both sides. Fung states that LF has been able to stay afloat because they have avoided what he coins as'the tyranny of geography.' Since the market continually shifts, LF is not tied down or rooted in any place (W Fung 2021, personal communication, 27 January).

### 1. RECENT ISSUES FOR LI AND FUNG

# The rise of e-commerce and decrease of speciality and department stores brands

The rise of e-commerce has allowed consumers to shop directly from brands, bypassing department stores and brick-and-mortar stores: one of LF's biggest customer bases. For example, Ascena Retail Group, the parent company of Ann Taylor and Justice as well as a big customer of Li and Fung, filed for bankruptcy in July 2020 due to declining sales (2021). The importance of brick-and-mortar stores for Li and Fung is visible from their core operating profit decline during the closure of these businesses. In 2020, Li and Fung announced that core operating profit declined 22.9%, mainly attributed to the closure of brick and mortar stores (Li & Fung Announces 2019 Annual Results - Li & Fung, 2021).

### Changes in the China Market

Recent events have increased labor regulations and the cost of labor in mainland China, including a new focus on quality of life for workers. In 2010, 15 laborers committed suicide from one industrial factory known as Foxconn Park over the course of a year(Suicides at Foxconn: Light or Death, 2021). This brought widespread attention to the quality of life of these workers, and the low wages they earned. The Chinese government increased the minimum wage for workers. Around ~80% of LF's factories were from China, and this minimum wage would mean that LF would have to pay significantly more to factories and charge more to customers, making them much less competitive (2021).

Secondly, due to China's one-child policy, China's labor force is decreasing. The labor pool is aging and newer generations are getting educated in specialized fields (Bloomberg, 2021). From the years of 2011-2013, China's working-age population (15-59) decreased by 3.45 million people (Chinese labour pool begins to drain, 2021). Therefore, the decreasing labor pool and increase of wages in China pose a problem for most of the factories that LF uses for its supply chain services.

#### China-US Trade war

In 2018, President Trump had placed several tariffs and barriers on China exporting goods to the US (A quick guide to the US-China trade war, 2021). In order to import goods from China into the US, a tariff would have to be paid. Since most of LFs customers were from the US, they were disincentivized to work with Li and Fung, whose majority of factory connections were in China. This caused a double folded problem for Li and Fung. Firstly, some of Li and Fung's customers were unable to pay the tariffs and had to stop relations with them. Secondly, the decreased demand for goods led some of Li and Fung's factories to close down. This is visible in a Bloomberg article on the trade war which dictates that the trade war helped contribute to decreased industrial output (Bloomberg, 2021).

### 2. DISRUPTION IN THE PROTOTYPING SUPPLY CHAIN

#### Disruptions in the supply chain threatening Li and Fung

The supply chains of soft goods used by Li and Fung have been relatively unchanged for the past 20 years. However, three major factors are disturbing the supply chain: e-commerce, the rise of indie brands, and factories competing directly with Li and Fung. The first is e-commerce, which has provided a few services that have begun to challenge Li and Fung.

E-commerce provides the ability to shop directly from one's home, which will make traditional retail stores. (and their suppliers) less dominant. For some consumers, this is a more convenient solution than going to a retail shop. It also allows products from around the country, or even the world, to be shipped directly. No longer do consumers have to worry about their location and availability. This has caused several of Li and Fung's major clients to go out of business. As mentioned in section 2, 80% of Li and Fung's customers are brick and mortar (2021). This direct-to-consumer model challenged Li & Fung, particularly as Li & Fung struggled to partner with eCommerce platforms.

E-commerce also allows the meeting of buyers and sellers directly which disintermediates players like Li & Fung. Since brands like Amazon have access to such large populations, buyers already have access to thousands of sellers and did not require LF's key role of matching buyer and seller. Therefore, LF's position as a middleman began to be "disintermediated."

The second major factor changing the supply chain is the closure of speciality and department stores retailers and the rise of indie-brands. Due to Coronavirus and e-commerce websites, mentioned in section 2, specialty and department stores retailers began to close down at a rapid pace. Li and Fung's biggest clients are specialty and department stores retailers, such as Ascena Retail Group. This again is a major shift in the supply chain Li and Fung are used to. However, the closure of these brands have led to a rise in another type of brand, Indiebrands.

Indie-brands, as suggested by the name, are independently owned companies, who mainly create a specific product and are quite niche and require a quick supply chain in order to keep up with trends. They are typically sustainability-focused and create goods in small batches (The Quiet, Quick Rise Of Indie Beauty Brands, 2021). These brands are on the rise as new generations are looking for more sustainable companies and more specialty products. Therefore, the market is shifting away from specialty and department stores retailers and towards Indie-brands, a possible market for Li and Fung to penetrate.

Finally, the third major factor changing the supply chain is factories offering similar services to Li and Fung, and going direct to consumers. Li and Fung's 'Eating into the soft 3\$' strategy allowed Li and Fung to maximize value-added services. However, due to new accessibility from e-commerce and the ease of creating websites, factories have decided to add their own services and go directly to customers, essentially taking their bite of the 3\$. The services that Li and Fung offered are getting implemented into factories directly, such as quality control. In this situation, Li and Fung is pressured to come up with new value-added services to be able to compete as a middle man.

### Introducing the idea of disruptive innovation

At the time of writing, Li and Fung are at a point of potential growth or decline. The supply chain network is changing quickly, yet they have the possibility of becoming a driving force in the reformation of the supply chain if they use the services available to them correctly. But in order to analyze this, one must understand the idea of disruptive innovation.

Disruptive technology is when an innovation creates a new market and services that grow to a point where it disrupts an existing market (Christensen, 2021). When a new firm has a new disruptive innovation, by definition it has to enter or even create a new emerging market. Typically, the market is cheaper with lower-income individuals. This is because the customers are more receptive to kinks and issues in the earlier stages as they have limited options due to monetary constraints. Once received by the newer market, it tends to finetune its product taking in feedback from the new market. Soon, it enters an existing market with a cheaper fine tuned alternative with an already existing customer base, stealing customers from the existing companies in that market, thus disrupting the market (Christensen, 2021). An obvious question is how do existing firms not notice these new firms' from beforehand. This is because existing firms look at their existing customer base to develop products, not new customers.

What typically occurs is the existing customer is focused on sustaining innovation. It aims to meet its already existing customers by adding new features and constantly improving its model. However, by doing this they are excluding a whole other market. By adding more and more features, the company gets more and more expensive while essentially introducing a similar product. Therefore, when a new firm enters the market with a cheaper alternative, with new features and services, customers are drawn towards that new product (Christensen, 2021).

# Successful methods of discovering and deploying disruptive technologies for existing firms

In order for firms to not be undercut by new entrants, firms need to seek disruptive innovations to continue being a dominant player in the market. If firms fail to search for or develop new innovations, they will eventually be disrupted by another player. Therefore, what methods can firms take to discover potentially disruptive technologies?

Christensen gives the explanation that companies fail to spot or create disruptive innovations because they stay too close to their customer base. Whether it be Xerox and Canon, Sears and Walmart, Digital Equipment and Apple, or even Blockbuster and Netflix, there exists a trend that only listening to an existing customer base leads to downfall. Therefore, Christensen advises executives to spot disruptive technology by noticing if it presents different performance attributes not valued by existing customers (Christensen, 2021). While this is important, Christensen also believes that a firm has to look at its own growth to analyze whether a technology would be disruptive. Therefore, Christensen presents a second factor.

Christensen advises executives to look for whether their own firm's attributes and the price would increase at such a rapid rate that once a new technology enters a new market, that the customer bases in the market actually want the attributes. What typically occurs is an established firm continues to develop its product, adding more features, and improving the same technology at a higher price. Then when a new firm enters, customers leave. Therefore, companies need to analyze whether their growth and price rises will alienate customers.

Using these two factors companies can find disruptive technologies, but how can established firms deploy these technologies successfully? Christensen has a few points that he believes will lead a firm to successfully deploy disruptive innovations.

The first is that the new technology should be launched in a new emerging market. While listening to existing customers provides a steady stream of profit, in times of change they could make a company complacent and unaware of disruptive technology (Christensen, 2021). New companies, however, enter into a market without an existing customer base. So, they seek out niches that they can be successful in; these are often overlooked by existing companies for being too small or not profitable enough to be worthwhile. In order to disrupt a market, one must enter with success from a new market. If a company starts off in its own market, its products will appeal to existing customers and not provide new goods and services needed to disrupt an existing market.

Christensen believes the second deployment strategy should be that the technology must be separated from the company (Christensen, 2021). This is for a few reasons. Firstly, so that the tech team doesn't gear themselves to existing customers at all. Second, in order to go into new technologies, companies must accept lesser profits as the technology would not have a large market as they are creating it. Third, the managers should be new and have limited connections to the parent company, as the old managers will keep doing what worked for them in the past, and are typically wary to take the risk. Placing the technology in a new company, and hiring people who have nothing to do with the earlier company and who have no ties to potential job losses would try and nurture the technology to the best of their ability (Christensen, 2021).

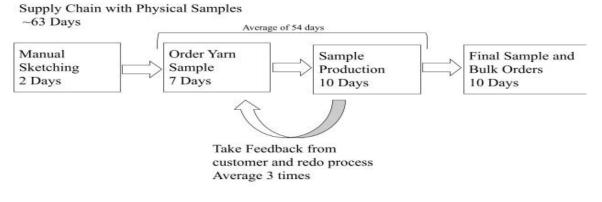
### 3. THE LF INNOVATION LAB

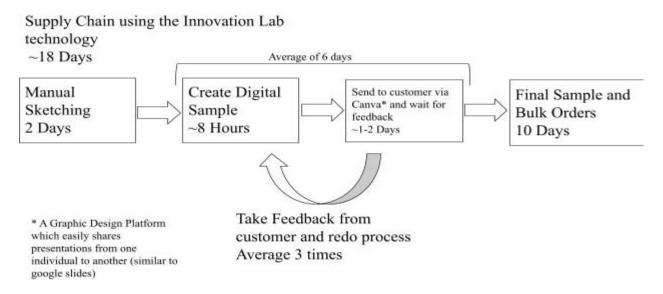
#### What is the innovation lab?

For decades, high fashion had a long-standing tradition of taking fashion from the runway to the saleroom: designers show their collections on the runway six months before selling the collection. Buyers would often see winter collections in the hot summer, and resort spring collections in the icy winter. This meant that more affordable brands had six months to implement the new trends into their collections for that season (Fashion for all seasons, 2021). However, a major shift occurred when Burberry announced in 2016 that consumers could buy the collection directly after the show (Conti and Conti, 2021). Several brands followed suit. Typically the more mid-market brands take inspiration from high-end brands for their collections to appeal to trends. This meant that the affordable brands had only a few days to implement the new trends and produce the merchandise. Around that time, Li and Fung saw an opportunity to solidify their middleman position and started to develop a shorter supply chain network using new technology which was coined as the Innovation Lab.

The innovation lab is part of Li and Fung's sweater vertical Cobalt. The main function of the innovation lab is to digitally facilitate the design and the sampling stage of different apparel for a wide variety of companies. The lab has spent the last few years creating digital assets of several types of fabric. These assets can now be used on software to create digital samples for companies in a few hours, rather than wasting time and creating real samples. By eliminating the need for designers to process and physically interact with the sample varn, the technology eliminates the need for designers to physically interact with sample yarn and speeds up the process by several days. The innovation lab allows designers to virtually select yarns and knits that have little to no difference in actual physical appearance. Essentially, the innovation lab drastically decreases the supply chain timing, which opens up several new customers in this shifting industry.

#### The improved supply chain from factory to customer





The improved supply chain offers customers a ~65% decrease in time as compared to the typical supply chain. In order for brands to survive, they will need to be on-trend, therefore, they would prefer a shorter turnaround which Li and Fung offers. Customers can go from waiting for seventeen days for a sample to two days. This technology could solidify Li and Fung's middleman position (D Pun 2021, personal communication, 10 February).

#### 2. THE IMPLEMENTATION OF THIS TECHNOLOGY TO LI AND FUNG'S SWEATER SUPPLY COMPANIES

#### Resistance by customers

When this technology was developed, Li and Fung started implementing this technology fairly rapidly into their sweater companies. Sweater companies would create two presentations to show their clients, one with normal samples, and one with digital sampling. According to interviews with team members, customers were wary to start using digital sampling due to one major reason. They felt the need to actually see the sample in real life and doubted the accuracy that a virtual sample could bring. However, customers were forced to see the positives of digital sampling when Coronavirus had spread throughout the world.

# The Coronavirus pandemic changing the perception of digital sampling

Due to the coronavirus pandemic, getting shipments of bulk orders from around the world became very cumbersome. Extra safety checks and measures had to be implemented and costs increased. For customers, sending samples around the world multiple times added large extra costs. Therefore, customers started to see the benefit of digital sampling. They were now able to edit samples on a PDF from the safety of their homes without exposure to the coronavirus or the costs associated with shipping. Not only did the digital sampling decrease supply chain times, but it also decreased costs and increased safety. Customers were more likely to adopt digital technologies during Coronavirus which allowed the digital technology to be used by the originally wary companies.

The companies started to notice how lifelike the samples actually were and noticed some additional benefits: cataloging and marketing. Since models could not go for shoots for the brand's catalog, companies started using virtual sampling in their posters and catalogs. Brands such as Walmart, Target, and Chico's have started to implement virtual sampling in their catalogs. Coronavirus allowed digital sampling's efficiency to be noticeable by brands who were originally very wary.

While brands are more willing to use digital sampling, the innovation lab is still in its rudimentary stages. The lab needs more iterations and would benefit from entering into a new market to enter in order to disrupt the conventional supply chain, per Christensen's theory on disruptive innovation. This market that Li and Fung is entering is the new market of indie brands.

#### **3.** THE RISE OF INDIE BRANDS

#### The new emerging market of indie brands

In order to analyze the possible success of indie brands, the definition must be clear. An Indie Brand is a niche market consumer product brand that is independently owned. Li and Fung has done research on Indie Brands and currently defines Indie Brands using six factors. First, it must be small; more specifically, it must have an average revenue between 1 and 25 million USD and must have less than 100 store keeping units (SKUs). Second, it must mainly be digital. Goods should be sold primarily online. Third, it must be niche positioned. The brand should be built around a single purpose, product category, or influence. Fourth, they are typically founder-led. The brand is typically built from the taste of a single individual.

Fifth, they should be inflexible. The brand struggles to expand outside the core product category. Sixth, they are typically young. The brand is generally built around Gen Z and Millennials (D Pun 2021, personal communication, 10 February). A good example of this is an Indie Brand called *Lemlem*.



Lemlem's website

For example, let's apply Li and Fung's technique of the six traits to Lemlem. Lemlem is a recent African clothing company that was recently featured in an Elle article about Indie Brands to support (100 Independent Fashion Brands To Support Now And Forever, 2021). However, is it actually an Indie Brand? Although the brand's revenue information is not online, several websites estimate it to be around 1-5 million USD (2021). This fits the first category. For the second category, Lemlem primarily makes its money online but it also sells in department stores. Lemlem is also niche positioned. The clothing is specifically designed using Ethiopian designs from Ethiopian cotton (Our story, 2021). Lemlem is founded by Liya Kebede, a supermodel, who believes the clothes to be her taste (Our story, 2021). Lemlem customers seem to be sustainable clothes wearers who prefer African prints and can afford expensive clothing. Lemlem was founded in 2007 and is built around the idea of sustainable clothing: a very appealing concept to Gen Z and Millenials (Our story, 2021). The conclusion is that Lemlem is an Indie Brand suggesting that Li and Fung's characteristics could identify Indie Brands. However, it is important to note that Li and Fung have missed out a characteristic of Indie Brands: sustainability. In Elle's article of 100 Indie Brands, 58 are focused on sustainability (100 Independent Fashion Brands To Support Now And Forever, 2021). Now that these new brands have a few possible characteristics and are identifiable, are these brands going to take up substantial space in the clothing industry in the foreseeable future?

In order to analyse whether Indie Brands will take up substantial space in the clothing industry, one can observe the rise of Indie Brands in another industry: beauty products. Indie Brands in the clothing industry have just recently started to emerge, however, Indie brands originally started in the beauty industry. Since Indie Brands have already had the chance to grow in an industry, the data from that can allow certain extrapolations to be made to the clothing industry.

### Indie Brand Growth By The Numbers

In a 2017 Deloitte study on the beauty industry, Deloitte noticed that 'global brands are losing share as small brands and disruptors are gaining.' (2021) A Forbes article details that the cosmetics industry increased by 5.5% in 2018, and niche segments increased by 10% (Center, 2021). Global Cosmetic Industry Magazine notes large growth in Indie brands from 2019 Q4 to 2020 Q1: Goop (28.85%), Honest Beauty (13.61%), and Skinceuticals (22.27%) (8 Beauty eCommerce Trends That Will Define the Industry In 2021 [Free Guide] | Yieldify, 2021). An article published by Forbes details the reasoning for this growth (Center, 2021). According to the author Pritika Gupta, the growth in the Indie industry is due to the Millenial and Gen Z population (Center, 2021). The branding and founder-led aspects these brands provide are appealing to Millennial and Gen Z buyers. Therefore, a major factor in the growth of these Indie Brands can be attributed to a younger consumer base.

# 4. COULD LF'S TECHNOLOGY DISRUPT THE TRADITIONAL SUPPLY CHAIN?

To analyze the Innovation Lab's potential disruption, the criteria detailed by Christensen can be used as a rubric. As mentioned above, Christensen has two major criteria for whether the innovation is disruptive. First, it must enter a new or emerging market (Christensen, 2021). Head of Innovation Lab strategy, Dorothy Pun stated that the technology will be entering the new and emerging market of Indie Brands. She mentions that Indie Brands have very recently proliferated the retail space in the US, Europe, and Canada. Therefore, the innovation lab matches this criterion. Secondly, the technology must have the potential to disrupt other industries in the subsequent years.

In order to evaluate whether this technology can disrupt other firms, statistics and interviews from LF executives discussing their projections for the technology can be used. The disruptive goal of this technology is to disrupt the existing market of large ready-to-wear affordable clothing companies. Brands such as Aeropostale and American Eagle Outfitters are brands Li and Fung already supply, and the end goal would be to offer this technology to them and maximize profits by reducing manual labor, sample production, and back-end labor. However, do the companies want a decreased supply chain, or are companies more prioritized on saving money than receiving clothes earlier. Companies are now prioritizing shipments arriving quickly as to stay on-trend (2021). The mid-market fashion industry is mainly trend-based. Brands take the biggest hits of high and trendy fashion and replicate it as quickly as possible. However, since high fashion, like Burberry, has started debuting and selling their collections on the same date, mid-market companies need to rush in order to stay on-trend. An example of this is Tommy Hilfiger, who in 2016 launched their capsule with Gigi Hadid and made it a direct-to-consumer show, with consumers being able to shop directly after the show (BoF Exclusive | Tommy Hilfiger Embraces Direct-to-Consumer Shows, 2021). Tommy Hilfiger also used to be Li and Fung's customer, which suggests how certain mid-market companies that Li and Fung supply require faster speeds. Therefore, this tool has the potential to allow brands to reach their trends quicker, thus providing a much-needed value-added service. Li and Fung's Group Chairman William Fung illustrates his ideas of whether this technology can disrupt a bigger market.

In an interview with William Fung, he stated that he believes that this technology has the capability to disrupt the relatively analog supply chains for Li and Fung's bigger customers. William Fung compares today's fashion industry to an hourglass. "The department stores and the specialty stores are getting squeezed in the middle, what's getting more relevant are the big-box retailers at the top who are one-stop shops which carry essential products that consumers go-to for everything from toilet paper to athleisure clothing, and the Indie brands at the bottom." Therefore, Fung is aiming to have this technology go right from this new bottom hourglass to disrupting the supply chains of the top brands. There are some features that could be implemented right away to reach this goal. For example, if Li and Fung get a large order, they can speed up the order by having several of their factory connections produced in parallel, further decreasing the time it takes to make the order. However, as Christensen describes, the good must first pass through a new market, take the feedback from the new market, and continue to improve the technology to penetrate the bigger market (Christensen, 2021). While the order itself can be supplied, the software and virtual sampling have just launched to market and needs to be improved in order to take on the vast amounts of clothes bigger brands require. Therefore, this technology is a potential disruptive innovation. This technology has the potential to change supply chain models, but will it continue to hold market space after it disrupts, or will it be disrupted? Will it fall into the trap of failures like Digital Equipment, or IBM before that, or is the technology defensible against other disruptors (Christensen, 2021)? (W Fung 2021, personal communication, 27 January)

# Are the features that the decreased supply chain valuable for Indie Brands

While the technology might be disruptive and somewhat defensible, the technology will not succeed if it does not provide services that are essential to Indie Brands, or William's "bottom of the hourglass". Indie Brands have to be very cost-

efficient due to their low revenues, so Indie Brands will not invest in using another company's services until it is required. The innovation lab provides two basic services, a reduced supply chain, and small orders. It has been discussed extensively above how Indie Brands require to be on-trend to stay competitive, and how the trend-makers have decreased their release times so Indie Brands have less time to design their clothes. Therefore, decreased supply time is valuable. But is the 'small orders' service essential to Indie Brands? Li and Fung's strategist Dorothy Pun believes that it is.

Due to Indie Brands' inflexibility and niche markets, small orders are a necessary service. As mentioned in the six criteria of an Indie Brand, Indie Brands are usually inflexible. As Pun said in the interview, "They have weak visibility into secondary market spaces and a limited understanding of supply chains. Their inflexibility to incentivize factories to make small batches of their products and their limited understanding of supply chains hinder them. Factories have little incentive to dedicate labor and raw materials to such small orders." Therefore, Li and Fung's services are services that Indie Brands would be incentivized to purchase. Li and Fung gives Indie Brands the connections to the factories and also decreases supply chain timing. Li and Fung can also take advantage of this exchange as Li and Fung can require Indie Brands to choose from their pre-selected digital samples already ready at the factories. Indie Brands who are inflexible have little choice and have to accept. So Li and Fung earns extra profit as the factories do not have to source new material each time, which means Li and Fung pay the factories less. While these two major features are essential to Indie Brands, Li and Fung are also aiming to implement features such as digital cataloging and DIY, however, is Li and Fung implementing these ideas to help Indie Brands, or are they stuck on their previous customer base? (W Fung 2021, personal communication, 27 January)

An analysis of the market suggests that digital cataloguing might be useful for Li and Fung old customers, but not for indie brands. The service of digital cataloging is essentially a software wherein the brand can put any digital sample on a prephotographed model. Big stores like Ann Taylor or Lane Bryant (LF's old customers) would have required big catalogs and so this feature would be a cost minimizer. However, Indie Brands do not require catalogs, as they sell clothes online; more importantly, Indie Brands need website pictures. This feature is very helpful with Indie Brands as they need not pay models for several shots or book a big studio location. Indie Brands can pay for one high-quality shot per model and put digital samples of their clothes on them for their website, thus saving time and money for the cost-effective Indie Brand. Despite having the other customer base in mind, going against Christensen's path for success, Li and Fung managed to produce a service necessary to Indie Brands. However, are all the services they produced this way necessary.

One of the features that Li and Fung is developing is Do-It-Yourself clothing, which, given our analysis, seems to be a less important service for Indie Brands. Li and Fung plans to allow Indie Brands to use their digital software technology for DIY clothing on their websites. However, the essence of an Indie Brand includes the fact that it is based on an individual, often a social media influencer, personal style. Rarely will consumers buying from the brand want to design something themselves, they want clothing designed by the individual. Not only that but customizing clothing costs more, which is an additional unnecessary cost to an Indie Brand. Li and Fung were thinking of their earlier customers. For example, consumers of Li Ning, one of China's largest shareholders in the athletic industry, and Li and Fung's sourcing agent, would want DIY shoes, as they want to add their own personal style with the famous logo (Li & Fung announces inaugural LF Asia sourcing agreement with Li Ning, and shareholders of 99.02% of IDS shares have elected for share alternative - Li & Fung, 2021). However, with Indie Brands, people are buying the clothes for their personal style. While some ideas might be generated successfully by listening to old customers, Li and Fung must be careful in order not to stray too far from what their new customer actually wants, rather than their tried and true methods for old customers.

# Is the technology defensible enough to secure Li and Fung's position in the market for subsequent years?

Li and Fung are one of the first large companies to use digital sampling to decrease their supply chain, however, how defensible it is remains an open question. The innovation lab utilizes three major forms of capital: the software, the machines, and digital sampling. The software, APEX, has not been developed by Li and Fung. This software has been developed by Shima Seiki - a knitwear machine manufacturer now also focusing on this proprietary digital sample software and hardware (SHIMA SEIKI | Computerized Flat Knitting Machines, Design System/Software, CAD/CAM Systems, 2021). Any company can purchase the software. The machines are available to purchase by any company and are thus not defensible. However, the piece of capital that needs more analysis is digital sampling.

Li and Fung have spent the last several years developing digital samples of varn, however, as time has passed it takes less time to develop or source these. Cobalt, Li and Fung's sweater vertical, has spent ~5 years developing these virtual samples. Each sample is a specific type of material, color, and knit. These intangible assets would take other brands several years to catch up with Li and Fung if they had to start in the same position. However, today a few digital sampling libraries are available for brands to use. Yarnbank is a digital library for yarn, so customers can automatically download the yarn onto their APEX program with ease (yarnbank - Digital Library for Yarn, 2021). If the yarn is selected by the company, the company can order the real sample from Yarnbank. Therefore, unless brands want specific details or logos, digital sampling is much easier to get and Li and Fung's intangible assets are less defensible. However, it is important to note that Li and Fung's intangible assets contain a massive library of digital samples, larger than most competitors would have access to for the coming years. While this may seem like Li and Fung has little chance of maintaining their possible place as a necessary middleman, Li and Fung does have one factor that might make the innovation lab defensible: its relationships with factories.

Li and Fung has been in the supply chain business since 1906 and thus has several factory connections which provide them with an advantage with this technology (Our history - Li & Fung, 2021). This is done in a few ways. Indie Brands require small order sizes. Since Li and Fung manages the factories, they are able to dictate what the factory should produce, even if it is an order size a factory would not generally take.

If Indie Brands or even new companies with this technology tried to approach factories to make the clothes, they would most likely refuse, as they make less money on smaller batches than bigger ones. Another reason Li and Fung's relationships are helpful is that Li and Fung can already choose which yarn to keep at the factory beforehand. Since Indie Brands have less revenue, they typically are more agreeable to choosing from Li and Fung's pre-selected collections. Therefore, Li and Fung save money on sourcing yarn, something other companies would have to pay for. Finally, Li and Fung can also use their large factory connections to run orders in parallel. As discussed earlier, brands require less and less time to receive shipments. "So we can have 4-5 factories producing the same goods in parallel, and this greatly reduces time," says William Fung. The relationships between the factories are what make the innovation lab more defensible as compared to similar companies. However, what if a company with similar relationships with factories tries to enter the market? Is the technology somewhat defensible then?

In order to analyse whether companies with the same relationships as Li and Fung would try and disrupt their business model, one must analyse their business models to see if the companies would even want to enter the space. As mentioned above, one of Li and Fung's biggest competitors in the virtual space is e-commerce. E-commerce acts like a middleman for sellers to reach a wider range of buyers at a cheap price, often undercutting Li and Fung. These massive companies are the only companies which can compete against Li and Fung in terms of access to factories. To analyse whether these companies are interested in the space, let's choose the two biggest in Li and Fung's retail spaces: Alibaba and Amazon. Alibaba is one of the biggest e-commerce companies in China at the time of writing, with around 80% of online sales in China (How Did Alibaba Capture 80% Of Chinese E-Commerce?, 2021). However, its business model prevents it from competing with Li and Fung's digital supply chain. Alibaba does not use factories or produce any goods. It is a site where sellers can post their items for buyers to purchase. One of their sites, TaoBao, actually charges no fee for buyers and sellers to put their item on the site or purchase it. Alibaba makes money off of ad revenue and sellers paying more to be featured on the

home page (Understanding the Alibaba Business Model, 2021). Therefore, Alibaba's relationships with factories is minimal as compared to Li and Fung? What differentiates Alibaba from Amazon?

Amazon uses factories to make their Amazon Basic goods, which is problematic to Li and Fung securing a middle man position. For Li and Fung's thousands of factories around the world, Amazon has less with around ~1020 producing its Amazon Basic goods. Amazon is similar to Alibaba except it makes its own products which are often cheaper than the similar products on the website, undercutting sellers. Despite the fact Amazon has less factories than Li and Fung, they still have the relationships with these factories and much more power than Li and Fung does in the market. Amazon could potentially start to offer this service to small sellers to put a virtual sample on the website, and only produce and ship when ordered. While Amazon would have to put in some time to the development of the integration of the software into their site, it is plausible for them to put this technology on their website in subsequent years.

# 5. LF'S STRATEGY- DOES IT ALLOW FOR DISRUPTIVE GROWTH?

#### Cobalt's Innovation Arm: Separate Enough to Be Dangerous

Clay Christensen, the economist responsible for the idea of disruptive innovation, believes that a disruptive innovation must be separated from the original company in order to thrive (Christensen, 2021). This is for a myriad of reasons. Firstly, the technology must enter a new market and reach a new consumer base. If the technology is run by the company, it is likely that it will enter the same or similar market as that is the company's expertise. And in order for a technology to be disruptive, it must enter a new market. Secondly, when entering a new market, an innovation must be prepared to accept losses, as the market might be too small to cover costs. If the original company is running it, it is logical for the company to drop the technology as it notices a loss as compared to other products in its existing market. Thirdly, the managers running the technology must have no control over the technology. This is because they will be more geared to targeting their specific market that they are more prone to working with. This is also because they might purposefully harm the innovation if the innovation success makes their job futile (Christensen, 2021). For example, if the manager of seamstresses at a company is placed in charge of mechanical looms, it is likely the manager will harm the technology to keep their job. It should also be noted that if regular employees are chosen to help the project, that they might negatively impact the innovation in order to appease their managers. Therefore, it is important for the technology to be separated from the company. Li and Fung claims to have the innovation lab separated in a sweater vertical called Cobalt, however, is it actually separated enough to allow the technology to flourish?

The major factor that allows the innovation lab to reduce sample times is Li and Fung's factory connections, therefore can it be considered separate? The innovation lab's major feature is that it decreases sample times from 60 days to 21 days, and it is able to do this because Li and Fung's previous factory connections allow Cobalt to produce small batches. However, does this mean Cobalt is not sufficiently separated, or that Cobalt is utilizing an advantage? It could be argued that Cobalt is utilizing an advantage.

The most important factor of separation is that Cobalt targets a new consumer base. Therefore, if Cobalt targets a new consumer base from Li and Fung while using Li and Fung's contacts, then it can be considered to be using an advantage.. The reason for being a separate company is that Cobalt first targets Indie-brands before disrupting an existing market. If Cobalt uses Li and Fung's connections while targeting a different market with a different strategy, Cobalt will still qualify as a potentially disruptive innovation. An example of this is LED lighting. HP's semiconductor lab, a separate division from HP, introduced these commercially in 1968 (the history of LED lighting -, 2021). LEDs could only display red lighting and were unreliable, which is why companies did not consider them a threat. However, as their technology improved, they became a much better alternative to the existing incandescent lamps, using ~80% less electricity and were much cheaper (How Energy-Efficient Light Bulbs Compare with Traditional Incandescents, 2021). It is important to note, Mohamed Atalla, one of the inventors of the LED lights, was the manager and creator of the HP Semiconductor Lab and had vast electrical engineering capabilities (Allosso, 2021). Do the managers in charge of the innovation lab at Cobalt report to someone else who wants to support the innovation, and do these managers have the same skill level in the technological knitting industry to lead the innovation to success like LEDs?

In interviews with team members, we learned information regarding the managers' experience, the technology experience managers have, and any reasons why managers might want the innovation lab to succeed or fail. For managers, it is important to analyze who they report to and whether they report to individuals whose jobs might be compromised if the innovation lab succeeds. According to the source, the nine leaders of Cobalt report to Victor Fung, the group chairman of Li and Fung that owns 55% of Cobalt, as well as Hony Capital, a private equity firm that owns 45% of Cobalt. This means that Cobalt group leaders report to parties who only benefit from the disruption Cobalt can bring. But what about the nine managers? According to our source, Cobalt managers' benefits are increased if the Innovation Lab successfully disrupts an existing market, as more tasks will be done digitally and less will be done in an analog manner, meaning the same volume with fewer people so a greater contribution per employee. Therefore, all high-level executives are motivated to have the technology succeed.

The manager's experience in technology and fashion is of importance to whether the technology can succeed, as past examples like the LED lights. According to our source, every one of the nine executives running Cobalt has 30-50 years of experience in the garment and knitwear industry. However, most of them have no experience in the technological aspects of the garment industry. According to our source, the nine leaders manage several managers who have ~20 years of experience in software and technology in the garment industry. However, One area of concern internally is a lack of technical expertise. Most of the Cobalt leaders do not have experience in technology fields. In order for these executives to effectively strategize the deployment and big picture of the Innovation Lab, they should have in-depth knowledge of the technology they will deploy. However, they can combat this disadvantage by using their 30+ years of experience of the markets to predict how their overall knowledge of the Innovation Lab will work in new markets, as well as hire technological experts to manage the processes closely of the Innovation Lab, which has been done.

### Cobalt's iterative approach

In order for the Innovation Lab to disrupt an existing industry, its services need to be continuously improved, which occurs through an iterative process. In order for completely new innovations, like the innovation lab, to succeed, they must be launched into the market to record feedback. Since customers' reviews cannot be forecasted, as nothing similar to this decreased supply chain has been launched in the Indie Brand space, Cobalt must continually launch new versions of the product in order to finetune it to the ability to disrupt an existing market. Christensen states this clearly in the Harvard Business Review article *Disruptive Technologies: Catching the Wave* by stating, 'Managers can create this kind of information [about what the new market wants] only by experimenting rapidly, iteratively, and inexpensively with both the product and the market.' (Christensen, 2021)

This idea of experimentation is crucial to disruptive innovations and can be found in several examples of successful technology companies. An example of this is HPs audio oscillators. HP took older oscillators and continuously iterated the workings of it until they were able to sell their oscillator at \$90, versus the regular \$200 dollar one (Packard, 1995). This was one of HPs first biggest successes, and it was not mainly attributable to innovation, rather iteration.

The Chief Strategist for the Innovation Lab Dorothy Pun has stated that Cobalt is running iterations to finetune their product before deploying it to the market. As Dorothy states 'first, we launched a quick and dirty website for 120 millennials in the Indie Brand space and did a survey' (D Wang 2021, personal communication, 10 February). What Pun has essentially done is placed their main idea onto a quick website so that they can make changes to their core idea of targeting Indie Brands before designing all the aesthetic features in order to save time. Pun elaborates, 'one of the features we decided to change in this first round is the subscription model. While subscriptions are common for us, we learned that millennials do not respond well to subscriptions. Millennials in the Indie space seem to think that if they are already paying for the digital sampling and shipping, why would they need to pay a subscription fee.' Therefore, in their first round of iteration, Cobalt has already changed a major aspect in their approach to targeting Indie Brands, showing that they are effectively iterating as Christensen states and previous successful tech companies follow.

#### 6. LI AND FUNG'S NEXT DECADE

Li and Fung have a critical decade ahead of it. Will it be disrupted by the e-commerce giants or will it disrupt existing supply chains? Will Li and Fung launch the innovation lab in a way that targets and incentivises Indie Brands to join the lab? Does the innovation lab itself have the characteristics that could some day disrupt the existing Li and Fung customer base market? Despite this uncertain path for Li and Fung's future, William Fung, nearing his 50th year at Li and Fung, shows no signs of slowing down on Li and Fung's innovations.

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