

Product Design, Technology, and Social Change

A Short Cultural History

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PART 1

PRODUCT DESIGN IN SOCIETY: AN INTRODUCTION

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Product Design and Its Impact

Understanding Product Types

Our lives have been re-fashioned by the mobility of products. Through trade, culture sharing, and the exchange of knowledge and values, many products have become 'cross-cultural'. While products meet fundamental needs, they also incorporate our feelings and values, offer comfort, test, and validate technology change. Products reflect brands and lifestyles and are created through expertise from 'domains' of industrial and engineering design, ergonomics, user experience and psychology, digital design, visual design, and market research (Luchs & Swan, p. 327).

Products can be physical or digital goods and have different classifications. Convenience products, like food and staple items, are purchased without too much consideration in convenience stores like bodegas (see [Figure 1.1](#)) and are usually non-durable, meaning they can be consumed or have a shorter life span. Products that are purchased less frequently like clothing, electronics, cars, and other one-off purchases are durable products and also known as 'shopping goods'. Other product classifications include speciality or niche products, raw goods like unprocessed materials, and capital goods like tools, machinery, and factories. Digital transformation has brought a new dimension, introducing new digital product types. Digital goods like audio products, e-books, videos, photos, and graphics have been designed and developed in a relatively short time since the mid-twentieth century.

Today, many products have gained international recognition with an increasingly borderless familiarity. Brands and their product lines have widened in close proximity to globalization, internet use, and the rise of multinational corporations and global consumer culture. Oluwafemi Samuel Adelabu, Toshimasa Yamanaka, and Richie Moalosi (2013) described that 'design is a phenomenon that never exists in isolation but rather is interdependent on both global and local histories, cultures and politics' (p. 136). The rise of cross-cultural products has signified evolving consumer preferences, a way to signal social status, and has bolstered brand credibility (or lack thereof) to the masses (Dong & Yu 2020, p. 53).

The number of products in circulation is so vast that it is hard to grasp. Today, hundreds of millions of people use social media platforms like TikTok, Instagram,



FIGURE 1.1: A bodega, or convenience store, in New York City, 2018. Convenience products that can be quickly consumed are typically purchased at these corner stores. The word ‘bodega’ originates from the Spanish word for ‘store’ or ‘cellar’.

and Telegram. It is estimated that ‘1.9 billion servings’ of Coca-Cola products are consumed in ‘more than 200 countries’ daily, making it one of the most consumed beverages in the world (Coca-Cola 2024). The three-dimensional game *Minecraft*, released in 2011, has become one of the best-selling video games of all time. Known for its blocky aesthetic and open-ended gameplay, *Minecraft* has generated extensive global interest from the United Kingdom and the United States, to Iceland and Saudi Arabia.

Some products have become integral to daily life. ‘Everyday’ products can undergo a long process before they become accessible and adopted for regular use. For instance, household products like flatware, including items as ordinary as spoons and forks, became ubiquitous as electroplating processes lowered manufacturing costs. Owning a sterling silver serving implement, like a ladle or a cake knife, can be prohibitively expensive, and coating a utensil with metal made them significantly cheaper. Likewise, soap had a long history before its integration into daily hygiene routines. Long before our modern conception, early types of soap were developed

among the Egyptians, the Gauls, and other civilizations who advanced soap making as a type of artisan craft (Watt 1885, B). Impacted by rationing during World War I and II, detergent soap was invented as an alternative to animal fat soaps and soon became widely available. Still, many people lack access to basic hygiene products and household goods, pointing to the fact that products exist as a ‘material dimension’ that can impact the quality of a person’s life (Cambir & Vasil 2015, p. 933).

Products also carry sentimental or ‘emotional’ qualities. Whether it is a team jersey, a stack of vinyl records, one’s mobile phone, or a well-worn pair of sneakers, products can evoke feelings of loyalty, conjure up specific memories, and shape a person’s preferences for particular functional and aesthetic attributes. Industrial designer Wolfgang Joensson (2020) illustrated that there are many personal and psychological aspects of owning a product and that products possess ‘content to which we can emotionally respond’ (p. 9). Joensson cited how the ‘transportability’ and shape of the Valentine typewriter, created by the Italian manufacturer The Olivetti Company in 1969, ‘turned the mundane typewriter into a fun tool’ (p. 170) (see [Figure 1.2](#)). In her historical research about typewriters, María Ramos Silva



FIGURE 1.2: An Olivetti Valentine typewriter designed by Ettore Sottsass and Perry A. King, released in 1969 by The Olivetti Company.

(2015) called the Valentine model a ‘design icon’ and noted that ‘the advertising of this machine brought pop art into the typewriter industry’ (p. 18). Eating a certain type of food that you enjoy and eating with others is also an emotional act and brings out the social qualities of food products. Researchers Sheere Ng and Justin Zhuang (2016) pointed out that ‘design turns food into every meal’ with the dining table serving as a place where meals ‘play out’. Ng and Zhuang (2016) elaborated on this point by depicting the Singaporean kopitiam. They described, ‘In Singapore’s coffee shops, better known as *kopitiam*s, round tables with accompanying portable polypropylene chairs are favored by proprietors because of the flexibility it offers. They maximize seating capacity and also inadvertently encourage strangers to dine with one another’.

Just as the warmth of a Singaporean kopitiam or the playfulness of Olivetti Valentine might evoke feelings like delight, other products can provide a sense of comfort or convenience (see [Figure 1.3](#)). A staple like a breakfast bakery product can support morning routines and participation in ‘regular family meals’ (Pirani, Harman, & Cappellini 2022, p. 215). Some products are purchased impulsively. Products that are spontaneously purchased at times come from your local ‘convenience shop’, which appear almost universally on street corners, at petrol stations and



FIGURE 1.3: Hill Street Kopitiam in Singapore, 2006. Kopitiam often consist of round tables and ‘portable polypropylene chairs’ favoured by proprietors (Ng & Zhuang, 2016).

train stations, and even informally out of people's homes. Assortments of everyday products are sold in 7-Elevens (across seventeen countries), New York City bodegas, and South African spazas or 'tuck' shops (see [Figure 1.4](#)). Inside convenience stores the shelves are lined with bottles of water, sweets, magazines, and newspapers. Small, informal grocery stores can help to support food security but simultaneously are faced with the challenge to stock healthy foods (Lenk et al. 2020).

Products needed in an emergency are categorized as convenience products. An umbrella is needed in the rain. Flashlights and candles are used during power outages. As a result of the COVID-19 pandemic, emergency care items or personal protective equipment (PPE) entered into our everyday 'product vocabulary'. The face mask became symbolic of the pandemic, decades after the N95 filtering facepiece respirator was patented by material scientist Peter Tsai. At the start of the pandemic, communities faced severe mask and PPE shortages. Researcher Erin Blakemore (2020), who referred to the 'simple face mask' as a pandemic mascot, investigated how shortages of medical-grade masks led to rapid collaborations between designers and physicists. The design of built environments such as parks, walkways, and roads, and emergency preparedness supplies have also become increasingly urgent in response to climate emergencies, as weather-related disasters have surged 'five-fold over 50 years' (United Nations 2021).



FIGURE 1.4: A 'tuck' shop in South Africa, 2014.

In contrast to convenience products, ‘durable’ products – like appliances, vehicles, computers, machinery, clothing, and accessories – are purchased less frequently by consumers and businesses. They are designed to last for a longer period of time. Elias Thabiso Mashao and Nita Sukdeo (2018) described a mix of factors that can influence buyers when they purchase durable goods. These can be cultural, social, psychological, and personal factors. The decision to purchase a durable product can be driven by perceptions of cost, quality, value, and risk (p. 1669). In terms of perception, the buyer may have a price in mind that they want, while the true retail price is the ‘objective price’ (p. 1669). When it comes to perceived ‘quality’ consumers may judge a number of features, like the materials a product is made of, or its labelling.

‘Made-In-Country’ labels, for example, are increasingly significant to consumers. By creating a ‘Made-In-Country’ index to study ‘perception of country images’, researcher Nicolas Loose (2017) found that consumers have biased tendencies. These may include viewing Japanese-made products as being ‘technologically advanced’, Chinese-made products as ‘providing great value for money’, and Swiss luxury products. The economic and cultural ties between countries have helped to establish these powerful perceptions. Unfortunately, it also means that certain brand stereotypes can be perpetuated by companies and consumers, dating back to histories between the ‘colonizer’ and ‘the colonized’. Loose (2017) observed that French products enjoy an ‘above average reputation’ in former French colonies as a result of continuous ‘cultural and economic exchange’.

As the international transport of goods continues to climb, consumers have increased exposure to global products, both durable and non-durable. Understanding the globalization of product design is layered and complex, as it speaks to the interdependence between countries and companies, and how widespread design and production networks are. From towns and villages to mega-cities like São Paulo and Jakarta, a mix of international and local products are now displayed. The resulting *mélange* can include items from familiar brands like Hennes & Mauritz (H&M), Starbucks, Samsung, and UNIQLO prominently juxtaposed with local products and hybrid products that are a confluence of functionality, style, and appearance, and local and international identities (Jackson 2004, p. 168).

For many transnational businesses, the growth of businesses has been remarkable, with a number of small businesses becoming the ‘global goliath of modern times’ (Brookings Institution Press 2021, p. 3). H&M, the Swedish fast fashion company, was founded by Erling Persson in 1947. H&M branched out from selling women’s clothing to include men’s and children’s clothing lines by the late 1960s. At that time they expanded to outside of Scandinavia in the 1990s, and to Hong Kong and Shanghai by 2007 (Arrigo 2018, p. 127). Starbucks was founded in 1971 by Gordon Bowker, Jerry Baldwin, and Zev Siegl at Seattle’s Pike Place Market ‘on hardly

any cash' and has grown to 33,000 locations in 80 countries by 2021 (Farr 2017). Samsung (which means 'three stars') found its start as a grocery trading company in 1938 and entered the electronics industry by 1969.

UNIQLO found its humble beginnings in 1949 as a men's clothing company; it was founded by Hitoshi Yanai and later re-designed by his son, Tadashi Yanai (see [Figure 1.5](#)). On his family business, Yanai described in a 2020 interview, 'My father was an old-fashioned merchant, and he didn't think of himself as an entrepreneur or a manager. But, it was my father who taught me what doing business was all about – that it was a practice' (Yoshimura 2020). He began operating the family business as the Unique Clothing Warehouse in 1984, which would later be renamed as UNIQLO and would go on to become one of the most successful businesses in Japan.

The evolution of a small business into a large transnational corporation selling global products is a 'relative rarity' and can be a 'complex, difficult, and hostile' journey (Li & Tan 2004, pp. 195–196). Hui-Hong JK Li and Kim Hua Tan (2004) argue that there are four stages in developing a successful transnational business: The first stage includes the 'conception and development' stage that focuses on 'product development and design', securing funding, and 'developing a market' (197). During the second stage, there is a commercialization phase, where a product can potentially do well and 'meet a need in the marketplace' (197). The third stage



FIGURE 1.5: The first UNIQLO store, 1984. Hiroshima, Japan. Fast Retailing Co., Ltd.

is the ‘growth’ stage, with a focus on selling products ‘in volume’, and the fourth stage is about ‘stability’ and creating ‘generation products’, ‘new product lines’, and ‘penetrating new geographic territories’ (p. 197).

In many ways, products undergo a remarkable journey – from local to international spaces, and now through digital spaces. Products are created, exchanged, and innovated upon and transcend many different types of domains and conditions. Each product bears a unique story of innovation, intertwined with economies and trade. Once, ancient trade routes like that along the Silk Routes enabled the exchange of goods between countries, while fostering the exchange of ‘new ideas, literature, knowledge, beliefs, arts, religions, and cultural values and norms’ (Gursoy & Altinay 2021, p. 442). In stark comparison, digital products are transmitted through servers and routers. They are made of code, experienced in imagery and audio, and often lack a physical, tangible form.

Digital products are an important departure from traditional physical products. Physical products are ‘touchable’, require some sort of storage, and they have to be shipped to the end-user or the customer. Digital products, in contrast, do not have traditional delivery or storage costs and are rarely out of stock. Smartphones, a hybrid physical and digital product, have become a primary means of accessing the internet. The phone is also an example of a product that has been designed and re-designed and its ‘everywhereness’ makes it an illustrative example of technological advancements in product design (Figure 1.6).

In the twentieth century, Western Electric’s rotary phone was once the ubiquitous standard domestic phone. Western Electric, a subsidiary of AT&T, had its first major telephone release with the Model 102 telephone. The company was founded in 1869 and notably was one of the first American companies to have a joint venture with Japan’s Nippon Electric. It was also the first company to allow a female employee, Alice Heacock Seidel, to remain on staff after being married. In their remarkable tenure, the ‘Dreyfuss team’ would create the Western Electric model 500 telephone that design history professor Russell Flinchum (2017) described as a post-World War II technological advancement. It included a shorter height, better visibility of numbers, and a ‘cross-licensing patent agreement’ that ‘made this design an industry standard’ to be manufactured by companies like Stromberg-Carlson, Automatic Electric, and Kellogg (p. 185).

In a 1999 *New York Times* article, Catherine Greenman reflected on ‘when dials were round and clicks were plentiful’ and wrote:

It’s hard to imagine Jon Walz, a film producer and vintage-phone collector in Los Angeles, getting as worked up in 20 years about today’s cordless telephones as he does about his Western Electric 302 rotary dial phone [...] Mr. Walz is one of a dying breed of people who still use rotary phones in their daily lives. Like other touch-tone



COLOR, EVERYONE?

Sure, but which? Here they are: nine of the glowing colors you may select in the handsome new phones Western Electric makes for Bell telephone companies. The picture chart above shows the relative public popularity of these telephone colors. Have you seen them lately at your Bell business office?

The trend in telephones is definitely to color—in both home and office—to complement any decor, or just for the sheer fun of it. And we at

Western Electric are happy to oblige; in fact, *two-thirds* of all new telephones we'll make this year will be in color. The rest will be in traditional black.

Producing good looking, dependable telephones and the equipment needed to serve you, is one of our main jobs as part of the Bell System.

Western Electric



Western Electric manufacturing and supply unit of the Bell System

FIGURE 1.6: A 1960s advertisement for Western Electric. For decades, models of the Western Electric were a standard North American telephone.

avoiders, he will gladly wait the extra seconds it takes for the dial to twirl back and forth between the numbers and its starting position in exchange for the feeling of nostalgia that the phones evoke.

Decades later, rotary phones have become outmoded, replaced first by cordless, portable phones, and then by mobile phones. In 2023, around 70 per cent of people on Earth owned a smartphone. As much as 97 per cent of Americans and 95 per cent of households in the United Kingdom owned some type of mobile phone (Pew Research 2021). User experience designer and cyborg anthropologist Amber Case (2010) described that humans act like cyborgs every time they look at one of their mobile devices. While she has some reservations about 'instantaneous button clicking culture', she also sees that it is the 'first time in the entire history of humanity that we've connected in this way'. Other products like music, film, and books have undergone a similar process of digitization, and are largely available on demand.

Instantaneous consumerism can be not only largely gratifying but can also increase some risks of anxiety and depression and of engaging in excessive amounts of screen time. While smartphone ownership continues to grow globally, in countries such as Senegal and Ghana, for example, fewer than 40 per cent of adults own one (Poushter, Bishop, & Chwe 2018). Even as innovative leaps are taken, it is important to address the disparities between those with and without access to the internet and communication infrastructure like computers and phones. With so many products and product types now available, we are immersed in a multi-faceted consumer and design culture. Patterns in design and production, consumption, and the way one navigates affordability have drastically shifted in the past century.