

# The Analysis of the Relationship between the User's Preference and the Smartphone Design

Jinnan Chen<sup>1\*</sup>, Yunqi Shen<sup>2</sup>, Wenxi Yin<sup>3+</sup>, Zixuan Li<sup>4+</sup>

<sup>1</sup>School of Management, University at Buffalo, Buffalo, New York State 14260, USA

<sup>2</sup>School of Arts & Sciences, University of Richmond, Richmond, Virginia State 23173, USA

<sup>3</sup>School of Business, Iowa State University of Science and Technology, Ames, Iowa State 50011, USA

<sup>4</sup>School of Business, George Washington University, Washington, District of Columbia State 20037, USA

\*Corresponding author. Email: jinnanch@buffalo.edu

+These authors contributed equally to this work and should be considered co-third authors

## ABSTRACT

In contemporary society, there is a growing complexity to the consumer purchase paths of mobile electronics as the market of smartphones becomes increasingly saturated. When customers face various smartphone brands, many factors are considered. Thus, this research aims to explore the relationship between product design and customer preference. By analyzing two cases, this paper would indicate that the key to a successful smartphone model is to identify the customers' demand at the design stage. On the other hand, such a conclusion also raises new problems for smartphone manufacturers. Indeed, a product that meets all customers' needs will help the company acquire a higher market share. But from the perspective of the smartphone designers, many factors have to be considered before they design the new smartphone model since they are also responsible for making the most revenue possible for the company. Balancing the product's profitability with the customer's needs is the eternal challenge that manufacturing companies and smartphone designers face. For instance, how to reduce the marginal cost in production while providing customers with new products they would like to buy? This paper will analyze two successful customer-oriented smartphone companies, Oneplus and Apple, with The Five product levels mode. Most importantly, the knowledge gained from this paper intends to assist smartphone designers and manufacturing companies in producing a product that wins high market share by meeting customers' expectations in features while gathering profit.

**Keywords:** Product Design, Smartphones, User's demand, Usability features

## 1. INTRODUCTION

This paper is inspired by the findings of the paper, *Smartphone Brands Design and Buying Decisions*, which was written by N Dospinescu and DB Florea. According to the conclusion of Dospinescu and Florea's research, the smartphone's features had a significant impact on customers' purchasing decisions [1]. With the advent of smartphones, two of the most critical factors that affect the consumer decision-making process are price and demand. In other words, customers pay the most attention to whether the product is what they need and whether the product is affordable. However, the study, *The Analysis of Purchasing Decisions and Brand Loyalty for Smartphone Consumers*, conveyed that the price was not the deciding factor because it found that only 33% of the respondents would choose the one with a lower price

between two different smartphone models even if 85% of them agreed that the price would be one factor considered [2]. Compared with price, different design features played more critical roles in arousing customers' desire to purchase the product since 85% of respondents indicated that they would compare the features difference between various smartphone models before purchasing [2]. These features included internal functions (89% of respondents), user-friendly operation interface (87% of respondents), battery life (89% of respondents), and the exterior design (85% of respondents) [2].

## 2. PURPOSE OF THE STUDY

This study aims to analyze the intersection of the smartphone features design and customers' demands by solving the following four questions.

1. How does the user's preference affect the

smartphone design?

2. Why is it important to comprehend and respect the user's preference?

3. How does a successful smartphone company take customers' demand features into their design consideration?

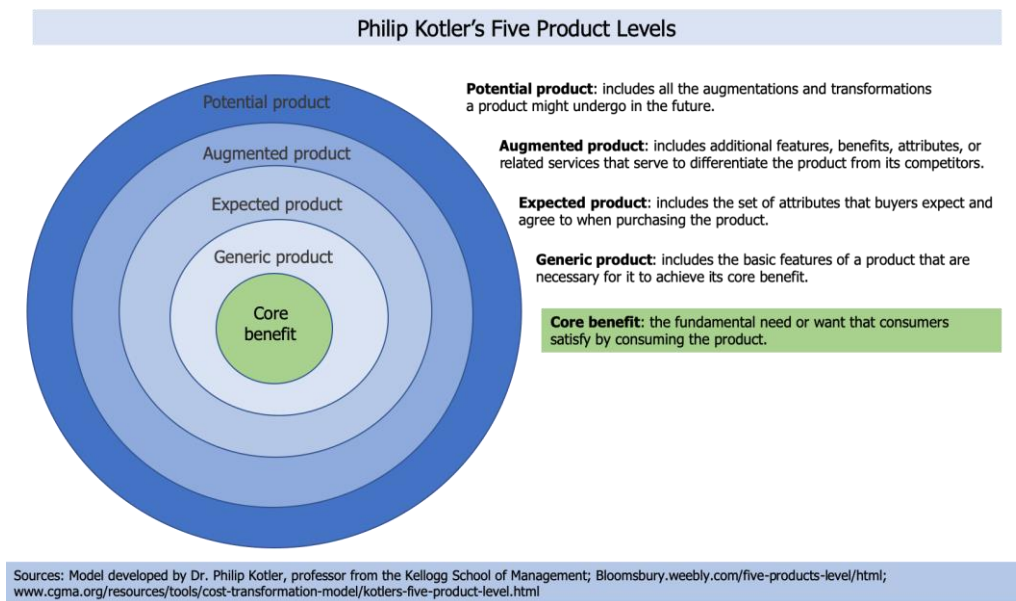
4. How does a successful smartphone company come to understand what kind of features customers demand?

In the conclusion section of this paper, we will mention why designers must identify that each feature of the smartphone is customers' demand; spend the majority cost of design on the features that customers need. And how designers can design a product that meets

customers' demand while offering a competitive price by saving the cost of the features that customers do not need. As a result, smartphone companies and customers can gain economically well if designers fully respect customers' expectations; customers obtain a product with satisfaction, and designers have their product popular in the market. Most importantly, because a popular product always means higher sales, companies can gather revenue and success in the market.

### 3.FIVE PRODUCT LEVELS MODEL

Economist Philip Kotler developed the Five product levels model to explain the different product satisfaction levels [3].



**Figure 1;** Five product levels model [3]

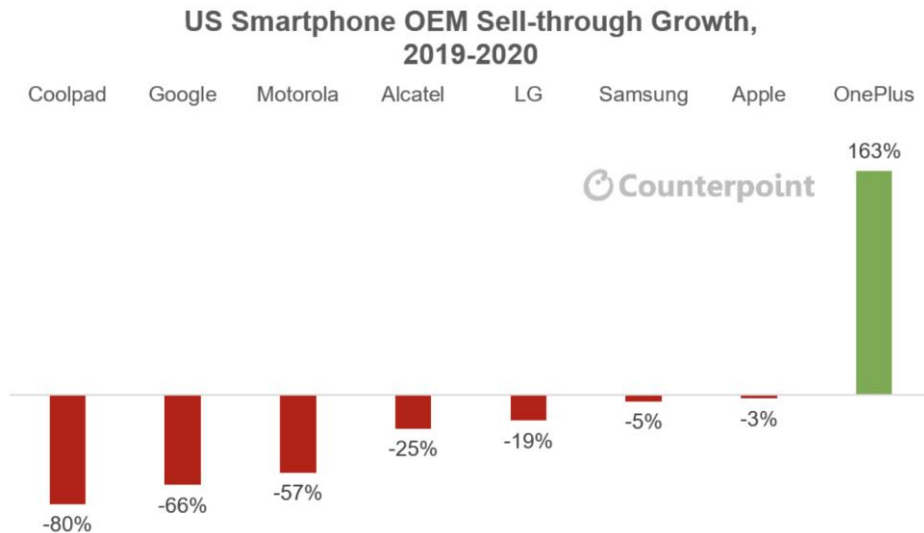
As shown in *Figure 1*, the five product levels model showed what the level of a product that met customer demand was. By utilizing this model in our case analysis, companies can clarify their product's differentiation and core competence. Most importantly, as Kotler mentioned on the website, the most significant advantage of this model is to assist companies in recognizing how to meet customers' expectations [3].

## 4.CASE ANALYSIS: ONEPLUS

### 4.1. Overview of Oneplus

Oneplus is a smartphone company located in

Shenzhen, China. It is pretty similar to Apple, but the difference is that it is positioning the premium smartphone at an affordable price. Like most smartphone companies, Oneplus smartphones' interior features are designed and based on the Android operating system; hence their product was not significantly different from its competitors. Back in 2016, when Oneplus introduced their first smartphone, the smartphone market was a trend to mature, conquered by Apple and Samsung. The first Oneplus smartphone obtained not even approaching 1% of the market share. Thus, Oneplus started looking for a new way to design their smartphone to meet customers' expectations to allow them to break into the market.



**Figure 2;** Source: CounterPoint / OnePlus Bucks US Smartphone Market Trend in 2020 [4]

Surprisingly, as shown in *Figure 2*, OnePlus, which had difficulty differentiating its product from competitors, had a significant 163% growth in market shares between 2019-2020, when most companies' market shares declined. What were the factors that made OnePlus so special compared to its competitors? What were the strategies that OnePlus implemented to break into such a saturated market?

**4.2. Strategy Formulation**

One of the biggest reasons that OnePlus achieved this growth was engaging consumers who felt disenfranchised with existing smartphone offerings [4]. In other words, OnePlus implemented a strategy that granted the right to customers to design the features they are desperately in demand. Hence, customers can only pay for their expectations, which attracts many users from other brands. As Agarwal indicated in his article, to execute the strategy, OnePlus was consistently communicating with the user through social media and modifying the design of the features in light of the result of most users' views in their next new model [5]. Unlike other brands, OnePlus never kept their new model extremely secret. To allow users to have a more transparent comprehension of their product, OnePlus even sent their new model available to smartphone reviewers, allowing them to build an integral evaluation for their users on the launch day [5]. As a result, customers can see if OnePlus truly listened to their feedback and reflected it in the product. This strategy increased the willingness of users to pay for it [5].

Indeed, OnePlus benefited from its initial strategy implementation, as *Figure 2* shown, and more importantly, this strategy strengthened their confidence to take a more ambitious step. OnePlus established a new social media platform to communicate with customers in

an equal position, called the "Oneplus community." It quickly became an essential bridge of communication between the designers and users [6]. OnePlus utilized the feedback from the OnePlus community as their first reference resource for their product design, which allowed OnePlus to provide a product that met the customers' expectations [6]. For an instance that Agarwal mentioned, OnePlus would take off the unnecessary features that customers believed, such as Quad-HD display and Stereo speakers, to cut the unnecessary expense for customers [5]. On the contrary, OnePlus would also add on the features that customers required. In light of this, since OnePlus invested most of the cost to the features users needed, its new model could always catch people's eyes and have a lower price [5].

Oneplus never became arrogant to dismiss users' needs and showed how they respected consumers' demands by modifying the design of the features based on users' suggestions. Correspondingly, users tend to be more active in providing more sincere feedback. Therefore, this strategy constructed a competent way of communication between users and designers. It allowed OnePlus to deliver a smartphone with all the expected functions, fulfilling users' demands while economizing the design cost.

**4.3. Five product levels model**

As mentioned in section 4, the Five product levels model is ideal for clarifying that the OnePlus smartphone meets customers' expectations at a high level. It provides a more logical way of comprehension to determine its product position in the market. This subsection will take a specific OnePlus smartphone model as an example, the OnePlus 8 series, to analyze by utilizing this model. All of the technical information and features detail(included internal features and external features) about the OnePlus

8 series in this subsection are referred to the information from the research article, *Oneplus 8 series: Aiming to redefine flagship experience* written by Ritesh Bendre [7].

#### *4.3.1. Core Benefit*

The core benefit is the fundamental demand or the customer's basic expectation for the product [3]. In this case, the core benefit was that the Oneplus provided a high-quality smartphone with all the features (including exterior features and interior features) that customers demanded. Moreover, it was cheaper than most competitors (\$200 lower than Apple and Samsung).

For example, its exterior design featured a metal frame sandwiched between front and back glass. The glass had a frosted back with a soft matte finish, which helped avoid the fingerprint magnet and slipperiness. On the other hand, it contained all the interior features that customers demanded in a smartphone, such as communication and information processing by utilizing the software.

#### *4.3.2. Generic Product*

The generic product includes the basic features of the Oneplus 8 series that are necessary to achieve the core benefit [3]. In this case, the generic product was the outstanding hardware features provided by the Oneplus 8 series. For example, it contained a high-speed CPU with a 5G support mode (7nm Qualcomm Snapdragon 865 SoC paired with a Snapdragon X55) and a faster Wi-Fi 6 support that its competitors were missing. Therefore, these outstanding hardware features allowed the Oneplus 8 series to process the information and message more efficiently, which achieved the core benefit.

#### *4.3.3. Expected Product*

The expected product is the additional features of the Oneplus 8 series that the customer desires, such as the wireless charge, high refresh rate screen, and remarkable camera performance provided by the Oneplus 8 series [3].

The Oneplus 8 series flaunted a 6.78-inch QHD+ (3168×1440 pixels) Fluid AMOLED display with curved

edges and a 120Hz refresh rate, making screen operation smoother and more responsive. Secondly, it provided a 30W wireless fast charge, way faster than Apple (7.5W). What's more, the Oneplus 8 series was \$200 less than Apple and Samsung. Last but not the least, it also had a remarkable camera, which featured a 48MP Sony IMX689 primary sensor that supported recording 480fps video, the 4K video at 60fps, and the 8K video. Therefore, based on the users' suggestions from the Oneplus community, these additional features made the Oneplus 8 series an expected product.

#### *4.3.4. Augmented Product*

The augmented product is the variations of the Oneplus 8 series that differentiate the product from its competitors and become a more obvious choice in the market [3]. In this example, the augmented product is that the Oneplus 8 series provided all the features that the customer expected while offering a lower price than other smartphone brands.

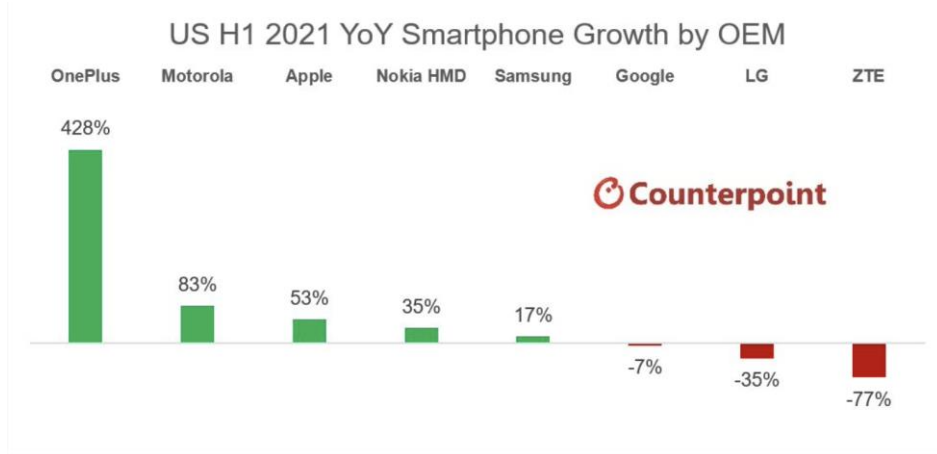
As mentioned in Strategy Formulation, the key is to communicate with users and fully respect their feedback. As a result, Oneplus can put the most cost in designing the features that customers highly expect. Therefore, the augmented product for Oneplus is the enhancement of the features' design that customers demand, but pricing is lower than other major brands.

#### *4.3.5. Potential Product*

The potential product is all augmentations and improvements the Oneplus new model might contain in the future, which means that the Oneplus needs to continually improve the design of the features to surprise users [3]. To Oneplus, the potential product is the Oneplus Community. It is a commitment to customers that they will continually see the improvement of the design of the features.

### **4.4. Summary**

In summary, thanks to its successful strategy formulation, Oneplus expanded its market share assuredly and quickly.



**Figure 3;** Source: CounterPoint / Q2 2021: US Smartphone Market Grows 27% YoY in H1 2021 Despite Shortages; OnePlus, Motorola, Nokia HMD Gain as LG Exits [8]

As Figure 3 indicated, Oneplus achieved an astonishing 428% growth in the US, H1, 2021. The Oneplus community built an efficient communication way to deal with the complicated relationship between designers and consumers, and the company had obtained numerous revenue by successfully balancing this relationship. In addition, the five product levels model provided a hierarchical structure to comprehend Oneplus’s product positioning and strategy more effortlessly. Consequently, Oneplus perfectly demonstrated how to deal with the relationship between the product design and customer preference and benefit from it.

**5.CASE ANALYSIS: IPHONE**

**5.1.Overview of iPhone**

It had been 14 years since Steve Jobs first introduced the long-awaited iPhone, a hybrid of an Internet smartphone and an iPod, in January 2007. As of 2021, Apple is the world’s fourth-largest smartphone manufacturer [9].

Apple Inc., founded by Steve Jobs, is now the world’s largest technology company by revenue and the world’s most valuable company as an American multinational technology company specializing in consumer electronics, computer software, and online services since January 2021 [10]. Due to the considerable price difference between the iPhone and other brands of smartphones, iPhone designers have to pay more attention to their product design to attract consumers to purchase their next phone model by satisfying their expectations.

**5.2.Strategy Formulation**

As one of the most customer-oriented companies in the smartphone industry, Apple firstly analyzed its target market. In this process, Apple tried to link its products to

the needs and requirements of selected customer groups. Apple targets the consumer base by customizing the iPhone to maximize its appeal to members of this segment.

**5.3.Five product levels model**

**5.3.1. Core Benefit & Generic Product**

Undoubtedly, the core benefit and the basic version of a mobile phone is to provide human beings with a tool to keep in touch even if they are far apart. As one of the most innovative brands, Apple does not pay much attention to improving the basic calling function. Instead, Apple decided to invest their time and energy in building a faster but long-lasting smartphone, a generic product’s fundamental feature. Take iPhone 11 Series as an example, “A13 Bionic, the fastest chip ever in a smartphone, provides unparalleled performance for every task iPhone 11 Pro and iPhone 11 Pro Max handle and features up to 20 percent faster CPU and GPU than A12” [11].

“All of this compute, graphics and ML performance is delivered while still enabling an unprecedented leap in battery life, with iPhone 11 Pro offering up to four more hours of battery life in a day than iPhone XS” [11]. These two features are best positioned to provide iPhone potential consumers with a generic smartphone with core benefits.

**5.3.2. Expected Product**

Nowadays, because of the features that consumers expect when they purchase mobile phones, phones are designed for entertainment, work, and even other functions. For instance, consumers nowadays also utilize their phones to watch movies, dramas and play games.

Furthermore, Apple’s primary target market is middle to upper-class people because usually, this demographic

has the means necessary to pay the higher premium price for Apple products [12]. Some of the potential consumers in this demographic, whose ages are about 30 and above, are required to participate in remote conferences so that they have to read through the slides on their phones. In light of this, considering the phenomenon that most iPhone customers are looking for a bigger screen for a better visual experience, iPhone designers worked hard on producing the expected product, which referred to product variations on the screen size that helped differentiate the product from Apple's competitors.

Starting with iPhone X, Apple ditched the home button to create an iPhone that was all display [13]. Therefore, the 5.5-inch Retina HD displays offered by iPhone 8 plus, the previous version of iPhone, had been upgraded to iPhone X with a beautiful 5.8-inch Super Retina display [13]. This innovation helped drive the iPhone X's success so that "Apple's iPhone X became its best-selling phone in a time that other financial analysts were saying the phone was going to be killed" [14]. Cumulative shipments for iPhone X reached 63 Million units by the end of Aug 2018, lower than iPhone 6 for a similar period since launch but on track to be the most successful revenue and profit-generating iPhone ever [15].

### 5.3.3. *Augmented Product*

On the other hand, since Apple's iPhones are expected to be of high quality, both in terms of software and hardware, Apple has kept improving their phone cameras' performance since iPhone 6 and iPhone 6 Plus.

In contemporary society, people are very used to taking photos with their smartphones and sharing those pictures on social media, such as Instagram, Facebook, or WeChat moments. Meanwhile, with the popularity of social media, new careers have emerged. A great number of people have become influencers by recording videos and posting them on Youtube. Owing to this, the camera function of mobile phones is becoming increasingly essential to consumers so that they are not only able to preserve those precious memories but also improve their chances of earning.

Intentionally, Apple has worked on its cameras for a couple of years. Starting with the iPhone X, which features a redesigned dual 12-megapixel rear camera system with dual optical image stabilization, which created the new era of the iPhone, Apple constantly adjusted the camera system of the iPhone [13]. With the iPhone 11 Series launch, the most revolutionary innovation of the iPhone's camera appeared in 2019. To meet the growing demand from customers, iPhone 11 Pro introduces a transformative triple-camera system with all-new Ultra Wide, Wide, and Telephoto cameras, deeply integrated into iOS to create a pro-level camera

experience designed for everyone [11]. This helped iPhone sales remain strong in 2019. Following the success of its predecessor, the entire iPhone 11 series became the most smartphones shipped in the first half of 2020.

### 5.3.4. *Potential Product*

The modern iPhone has a faster processor, better battery, bigger screen, and professional camera system. Its product design had expanded beyond anything it was when the first iPhone was released back in 2007. There is no doubt that Apple will continue to launch a new iPhone whose designs meet customer needs over time. Analyzing the condition of its target market and providing the features that the consumers need was the promise that Apple had made to its customers.

## 5.4. *Summary*

In the current success of Apple, the revenue generated by the iPhone as a cash cow played an important role. Even though the price of the iPhone is much higher than other brands, the iPhone's market share is non negligible. By utilizing the five product levels model to the iPhone, smartphone manufacturers will better understand how to gain higher sales by satisfying customers' needs even when pricing is at a disadvantage.

## 6. CONCLUSION

### 6.1. *Conclusion*

Overall, the companies hope to acquire customers' opinions because they help the phone designers build an augmented product that satisfies customers' expectations and is competitive among products with the same fundamental functions. The consumers' preferences would better help the smartphone manufacturers understand the features that they should mainly focus on in the design stage and have a basic expectation on the market segment for the newly-developed features.

When it comes to how smartphone companies take customers' demanded features into their design consideration, it is easy to realize that designers have to consider factors like the cost both on time and money, and profits while taking care of customer demand. The cases about Oneplus and Apple showed how the companies benefit from respecting and comprehending the users' preferences. The instance about Apple indicated that target customers' opinion would be the factor considered the most since the target customers would be the main buying power and contribute to the profit the most. Thus, the company could develop the features that satisfy most customers and further gain success in gaining profit improvements.

To better understand what kind of features customers

demand, according to the above two cases, the company tries to shorten the distance between itself and the customers by collecting feedback from every process of selling and returning, setting up social media platforms to discuss with customers on the expected features, etc. By collecting and analyzing this feedback to connect with the target customers, the smartphone company obtains the ability to understand what features are most expected to have the potential to design the features that fulfill customers' demands. Therefore, putting customers' feedback into consideration during the design procedure would make customers feel that their opinions are being heard. This further built up unquestionable loyalty because the customers would believe the brand cares about its customers and can develop the product they are satisfied with.

To summarize, based on the information in the cases, we found that customers would feel that their voices towards the products are being heard and further the company, which builds up a closer relationship with the customers. Also, under such a mature market, the products' features met the customers' standard would be able to gain a significant improvement on market shares. Thus, we further suggest the smartphone companies treat the consumers' preferences as a vital factor to consider while designing the features.

## 6.2.Suggestion

After discussing the relationship between features design and user demand by analyzing Oneplus and Apple, we hope that readers are inspired by the suggestions provided in this section.

Even though it is challenging to meet all of the features demanded in one product, companies need to learn how to distinguish the valuable sources as the reference for the design of the features.

We suggest that companies should listen to customers' feedback, understand the composition of customer groups, and find the features they value the most. Designers should look for and serve those customers who have insight into the market development prospects. They can provide the most valuable feedback. Therefore, designers can design a popular product based on customers' suggestions. Worth pointing out, companies must be positioning their product in an obvious way; the five product levels model is an excellent tool to do so that companies can profit by selling their products to a more suitable segment.

To retain and gain more customers, companies need to give customers a sense of "belonging." For instance, Apple Inc. has many loyal customers who have a sense of "belonging" to Apple Inc because of its excellent industrial design. In addition, there is a cognitive bias called "the IKEA effect," which means that consumers will mistakenly overestimate the product's value when

evaluating the value of the product they have invested in labor and emotion. The more they invest, the higher the value evaluation of the product. In the design of features stage, we suggested that companies also utilize this "IKEA effect" to let users participate in the construction of products to have a sense of belonging to the products. The Oneplus community is a typical case. In the early research and development stage, Oneplus established a giant database that collected numerous valuable experiences from users, which helped meet the customers' expectations. In this way, Oneplus gained a lot of real consumers' feedback, gave consumers a sense of participation, and made them feel that the birth of this product has their own contribution; thus, stimulating their more tremendous enthusiasm for participation.

In conclusion, there are many competitors in the smartphone market. We believe that it is better to be close to real users, observe their use of products and take the valuable users' feedback seriously if companies intend to build a competitive advantage. At the same time, the five product levels model is a good tool for companies to better position their product, which allows them to gather more revenue by selling their product in the segment market. Therefore, companies can benefit from dealing with such a complicated relationship between designers and users.

## REFERENCES

- [1] Dospinescu, N., & Florea, D. B. (2016). SMARTPHONE BRANDS DESIGN AND BUYING DECISION. *Ecoforum*, 5(Special Issue), 139–150.
- [2] Chen, Y.-S., Chen, T.-J., & Lin, C.-C. (2016). The Analysis of Purchasing Decisions and Brand Loyalty for Smartphone Consumers. *Open Journal of Social Sciences*, 4, 108–116.
- [3] Kotler, P. (2020) Re-Perceiving KOTLER'S PRODUCT Framework for Insurers., 6 May 2021, [rabkinsopinions.com/2020/01/16/consideration-of-a-product-framework-the-potential-implications-for-insurers/](https://rabkinsopinions.com/2020/01/16/consideration-of-a-product-framework-the-potential-implications-for-insurers/).
- [4] Klaehne, M. (2021, February 4). *OnePlus bucks US smartphone market trend in 2020*. Counterpoint Research. <https://www.counterpointresearch.com/oneplus-bucks-us-smartphone-market-trend-in-2020/>.
- [5] Agarwal, A. (2019, May 23). *OnePlus has the best marketing tactic on the internet*. Medium. <https://medium.com/swlh/oneplus-has-the-best-marketing-tactic-on-the-internet-bca071cbc3f2>
- [6] Saxena, A. (2021, May 2). *Never settle: The strategy of oneplus*. The Strategy Story.

<https://thestrategystory.com/2021/05/02/oneplus-strategy/>

- [7] Bendre, R. (2020, April 17). *Oneplus 8 series: Aiming to redefine flagship experience*. Counterpoint Research.  
<https://www.counterpointresearch.com/oneplus-8-series-aiming-to-redefine-flagship-experience/>.
- [8] Klaehne, M. (2021, July 27). *US smartphone market Grows 27% YoY in h1 2021 Despite shortages*. Counterpoint Research.  
<https://www.counterpointresearch.com/us-smartphone-market-h1-2021/>
- [9] Team Counterpoint (2021, August 5). *Global Smartphone Market Share: By Quarter*. Counterpoint Research.  
<https://www.counterpointresearch.com/global-smartphone-share/>
- [10] Popken, B. (2020, August 19) *Apple is now worth \$2 trillion, making it the most valuable company in the world* NBC News.  
<https://www.nbcnews.com/business/business-news/apple-now-worth-2-trillion-making-it-most-valuable-company-n1237287>
- [11] Apple Newsroom (2019, September 10) *iPhone 11 Pro and iPhone 11 Pro Max: the most powerful and advanced smartphones*  
<https://www.apple.com/newsroom/2019/09/iphone-11-pro-and-iphone-11-pro-max-the-most-powerful-and-advanced-smartphones/>
- [12] Gaille, B. (2015, September 28). 18 Key Apple Target Market Demographics –BrandonGaille.com.  
<http://brandongaille.com/18-apple-target-market-demographics/>
- [13] Apple Newsroom (2017, September 12) *The future is here: iPhone X*  
<https://www.apple.com/newsroom/2017/09/the-future-is-here-iphone-x/>
- [14] Haselton, T.(2018, May 2). *How so many analysts got the Apple iPhone X wrong last quarter*.  
<https://www.cnn.com/2018/05/02/the-analysts-were-wrong-the-iphone-x-is-now-the-most-popular-iphone.html>
- [15] Pathak, T.(2018, September 10) *iPhone X Drove Apple's "Revenue Super Cycle"*  
<https://www.counterpointresearch.com/iphone-x-drove-apples-revenue-super-cycle/>