Global Android Smartphone Market: Strategy Recommendations
Abstract

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The purpose of the research is to provide recommendations on business strategies for participants of the global Android smartphone market.

The recommendations were developed through a descriptive and exploratory research of various related topics – first, the market was overviewed in general, then, products, pricing and general strategies of the case companies were analysed. The main theoretical concepts used were David Aaker’s market analysis dimensions, Wiley Encyclopaedia of Management’s market competition spectrum, part of the 4P “Marketing Mix”, Joel Dean’s “Pricing Policies for New Products” and Porter’s Generic Strategies. The information was obtained from secondary sources.

The conclusion chapter presents an overview of the market, products, pricing, and strategies of the case market leader companies. From there, some general recommendations for other market participants and potential new entrants are provided.

Keywords: Smartphone, Android, Market
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1 Introduction

The topic of the research is strategy recommendations for the global smartphone market of Android devices. It is carried out as a study of the market and a case study of the year 2019 three market leaders by shipments worldwide (Canalys 2020) – Samsung, Huawei and Xiaomi. The research will examine some aspects of their products, pricing and strategies. From the market overview and case examples, general recommendations will be given to other market participants.

The topic has been chosen out of the author’s personal interest. The author follows the smartphone market news, reads internet articles on the subject and watches the competition of different smartphone brands. Having certain knowledge of the market has helped the author observe some research gaps in public knowledge, and the topic of the factors of strategic advantage in the recent years does not appear to be well-studied. It is worth noting that while the smartphone industry (like many other similar markets) has many gaps in public knowledge, it is most likely that the market stakeholders conduct extensive research, but the findings are largely kept within the companies’ own intelligence, unreleased to the public.

The smartphone market is indeed worth researching – it is a market with large sales volume and significant growth potential. According to statista.com (2020), the global smartphone sales volume in 2018 were estimated at around $522 billion, and a stable growth trend is observed over the recent years. Smartphones are undoubtedly a very relevant item for consumers and the smartphone market is expected to continue growing in the years to come, albeit, as for spring 2020, the coronavirus pandemic is adversely affecting virtually any industry, and the smartphone market is no exception.

1.1 Background

As described in Encyclopaedia Britannica, a smartphone is “a mobile telephone with a display screen (typically a liquid crystal display, or LCD), built-in personal information management programs (such as an electronic calendar and address
book) typically found in a personal digital assistant (PDA), and an operating system (OS) that allows other computer software to be installed for Web browsing, e-mail, music, video, and other applications" (Hosch 2009).

Nowadays, the term “smartphone” is familiar to virtually anyone. It is, undeniably, a technological and a social phenomenon that influences daily lives of ordinary people, allowing for instant access to information and offering significant computing powers, while fitting into a regular pocket.

The global smartphone market is a relatively young yet ever-growing market. In early 2020, the number of smartphone users was recorded at over 3 billion, and it is expected to grow further. Despite showing some signs of stagnation, the market still has significant potential due to rather low market penetration rate in many countries, including India and China, where it is below 70 per cent. (O’Dea 2020.)

The smartphones are commonly seen as successors to the so-called feature phones, whose functionality was not usually extended far beyond the basic phone call and text message features. IBM’s Simon, first sold in 1994, is now regarded as the first smartphone in history, although it was not called a smartphone at the time (BBC News 2014). However, it was not until 2007 that smartphones rose to prominence, when Apple introduced the iPhone. Following Apple’s success, other manufacturers hurried to enter the market. Since then, the market has seen extensive growth and has changed significantly.

1.2 Objectives and Questions

The purpose of the research is to provide general business model guidelines for smartphone market participants, with the guidelines based on the strategies of the market leaders. Analysing the cases of market leaders may be useful to other market participants for improving the competitiveness. This is to be done through research in various stages. First, the Android smartphone market overall is to be analysed based on several analysis dimensions. Analysing the market is necessary to provide background for analysing the case companies. Next, part of the marketing mix – products and pricing – of the three market leaders (Samsung, Huawei, Xiaomi) are to be reviewed. From the findings, the strategies of the three case companies are to be analysed based on Porter’s Generic Strategies.
The concept of Porter’s Generic Strategies is a well-known model and suits well for analysing business strategies in general. The theory model of this concept requires understanding of products and pricing, but, for example, the “Place” and “Promotion” parts of the Marketing Mix are not necessary.

The research findings might be useful to existing market participants, potential market entrants, any smartphone market stakeholders (e.g. investors) or other researchers.

The main research question is what business model recommendations may be given to the smartphone market participants. The answer depends on the research findings that provide answers to the additional questions, which are set as following:

1. What are the size, structure, profitability and trends of the global smartphone market?
2. What are the characteristics of products of the market leaders?
3. What are the pricing policies of the market leaders?
4. What strategies do the three market leader companies pursue and why?

1.3 Scope

The research subjects are the global Android smartphone market as a whole and the three market leaders by shipments of 2019 – Samsung, Huawei, Xiaomi – analysed as competitors with competing products, which, within similar price ranges, differ in performance, value of components and overall value.

The research will start by analysing the Android smartphone market as a whole through available secondary information. The market analysis will rely on David Aaker’s dimensions: actual and potential market size, market growth, market profitability, cost structure, distribution systems, trends and developments, key success factors (Aaker & McLoughlin 2010, pp. 61-62). The research of each dimension will depend on availability of secondary information.
Then, the market leader manufacturers will be analysed for their strategy and marketing. The key concepts for this stage of the research will be Porter's Generic Strategies and Marketing Mix (4P).

1.4 Theoretical Framework

The research, on its various stages, will be based on the framework of certain theories of market research and marketing.

The market analysis will loosely rely on David Aaker’s market analysis concept with various dimensions, such as market size, market growth rate and market profitability. Various internet sources of secondary data will be used to evaluate the smartphone market as a whole. Market Structure and Competition in general will be examined based on the concept of competition spectrum from Wiley Encyclopedia of Management.

For analysing the market leader companies, several theories will be used. The “Product” and “Price” parts of the popular model of 4P Marketing Mix will be used to generally describe what the case firms offer and what their pricing policies are. For this concept, the 2012 publication by Meera Singh in the Journal of Business and Management will be relied on, although reviewing the products does not require adherence to strict theory. The pricing will be evaluated based on Joel Dean’s 1976 “Pricing Policies for New Products” publication. Based on the findings and other secondary information, their strategies will be evaluated based on the model of Porter’s generic strategies, relying on publications of Michael Porter himself and Peter Wright’s 1987 “A refinement of Porter’s Strategies”. This concept would be used to classify the strategies of the business as either cost leadership, differentiation or focus.

1.5 Delimitations

The research will have certain delimitations. It will concern various stages of the research process.

The first delimitation is the target market. The focus of the research is the portion of the market affiliated with handsets based on the Android platform, i.e. the por-
tion of market affiliated with Apple’s iOS and other operating systems is not actively addressed, albeit the Apple will be mentioned within the market analysis, as it occupies a large portion of the market and may not be overlooked. The reason for narrowing the focus to Android-associated market is the fact the Apple’s ecosystem, iOS, is proprietary. In contrast to open-source Google’s Android platform, iOS is restricted to use solely by Apple. Thereby, currently the only apparent way for new market entrants or existing participants to engage in competition and attempt to increase their market share is to address their efforts towards the market of Android devices.

The second delimitation regards the manufacturers to be analysed. The research will include the three annual Android smartphone market leaders in Europe, based on the revenue: Samsung, Huawei and Xiaomi.

The third delimitation concerns the complimentary products market. Nowadays, manufacturers are increasingly investing into the markets of such products as wrist bands, wireless earphones or wireless chargers, marketed as smartphone accessories. These are not included in the research.

In general, the goal of the research is to analyse the strategies of the case companies and develop recommendations. Business strategies are comprised of various dimensions and are influenced by various factors, and some of them may not be within the scope of the research. The research will consider some aspects of the strategies and marketing, product-specific key selling points, competitiveness of technical components, performance ratings, but certain less measurable concepts, such as brand awareness and brand equity, will not be evaluated in their entirety, as the strategies and the actions required to influence such factors are more subtle and are not always possible to directly analyse and develop guidelines upon.

1.6 Methodology

The research will be qualitative and involve content analysis of data from various secondary sources, such as business reports, industry reports, internet articles and previous research. As the research involves analysing a large market with
the population of users counted in billions, personal gathering of statistically significant and reliable primary data is not feasible for a student. At the same time, primary sources (detailed industry reports, extensive statistics) are not accessible and are restricted by paywalls, often as high as several thousand U.S. dollars. The research therefore depends on secondary sources, such as business reports and internet publications, that summarize and analyse information from primary sources.

The methodology may be described as descriptive and exploratory research. The descriptive part of the research is where it is concerned with describing phenomena (Adams et al. 2007). A large portion of the research will be aimed at simply describing the existing situation within the market and its participants, describing their strategies and offerings.

The exploratory part is the research into phenomena, meant not only to simply describe but to also answer the question *why* (Adams et al. 2007). The exploratory parts of the research are the part that will explore the strategies of the market leaders further, the part that will attempt to uncover why the market is structured one way or another.

The exploratory research will be carried out as an application of general theories on the cases within the study – from the available information the strategies of the market leaders will be classified within the theoretical framework of the “Marketing Mix”, Porter’s generic strategies.

### 1.7 Structure

The first chapter of the thesis, concluded by this subchapter, is the introduction. It presents what the thesis aims to achieve, explains the scope and theoretical framework, clarifies research questions, delimitations and methodology, and provides some general information on the subject.

The second chapter will present a more detailed review of the sources and the theoretical framework. It will explain the theoretical concepts sourced from scientific publications, as well as it will mention the previous research on similar subjects.
The third chapter will present the actual analysis, i.e. application of the theoretical concepts to the case of the smartphone market and the three case companies. It will include descriptive presentation of previous research findings and primary findings of the analysis of secondary sources.

The last chapter will summarize the conclusions. The research findings will be described in the first sub-chapter and my personal reflections will be presented in the second sub-chapter.

2 Literature Review

This chapter will address the previous research and the theoretical concepts used in this work.

It will begin by referring to previous thesis publications that assisted me in understanding the structure of thesis research. Then, theoretical concepts will be presented and reviewed.

The aim of the thesis is to analyse the strategies of the market leaders based on the concept of Porter’s Generic Strategies, and this is to be done through analysing the market as a whole and the case companies specifically. Analysing the market gives understanding of the market as an environment where the case companies operate, and understanding of this environment is necessary for understanding the companies’ strategies. Analysing the products and pricing of the firms gives allows to describe and classify their strategies.

2.1 Previous thesis publications

There are various thesis/dissertation publications in open access that study smartphones e.g. as devices in the context of psychology or information security. However, the research of smartphone market, as well case studies of smartphone manufacturers, do not appear to be so abundant.

One of the works on a similar topic that I have found to be relevant is a Bachelor Thesis work “Samsung Smartphone Market Strategy”, submitted by a student of
2.2 Market Analysis Literature

The goal of analysing the smartphone market is to find various characteristics thereof, the knowledge of which may be important for analysing the case companies. Understanding such qualities of the market as its size, structure, profitability and trends gives an understanding of the environment in which the case companies operate. Fulfilling the main objective of this research is establishing the factors of competitive advantage of the case companies, which requires an understanding of their strategies. One of the components of a business strategy is a determination of the product market in which the business is to compete (Aaker 2001).

As the market analysis is not the primary objective of the research and only serves as the background for analysing the business environment, it will not be carried out in depth, and will only explore the general parts of the theoretical concepts.

The market research will loosely rely on the guidance of David Aaker’s dimensions. The concept of market analysis, as explained in “Strategic Marketing Management” is primarily targeted at determining “the attractiveness of a market to current and potential participants” (Aaker 2001). However, within this research its objective is merely to analyse the market as the environment in which the existing market participants operate. For that purpose, the useful concept is the market analysis dimensions: actual and potential market size; market growth; market profitability; trends and developments (Aaker 2001). Relying on these concepts allows for a well-structured description of market.

The most important characteristic describing the size of a market is the total sales level. It is suggested to source estimates of a market size from government
sources, trade association findings, financial sources of market participants. (Aaker 2001.)

After establishing the size of the market, the next important dimension is the growth rate. Knowing what the size may be in the future is important for estimating effectiveness of current strategies. If the market is expected to grow overall, then market participants may expect sales growth even without increasing market shares, and it means less price pressure. On the other hand, declining markets bring opposite expectations – shrinking sales and more price pressure. (Aaker 2001.)

Market profitability analysis means estimating average profit levels in the market. David Aaker’s market profitability analysis relies on Michael Porter’s Five-Factor Model of Market Profitability. However, this model is too complicated for a general analysis. Instead, the market structure spectrum from the Wiley Encyclopedia of Management will be used to describe the market competition. The spectrum includes several market structure types, such as perfect competition, oligopoly and monopoly. To classify the market as one of the types, the number of firms and degree of differentiation are to be considered. From the market structure type, it is possible to give a rough estimation of profitability.

Another important element of market analysis are the market trends. Describing the market trends means describing what is likely to change in the future and what developments market participants are pursuing.

It is important to note that the smartphone market is usually divided into various price segments. There is no universally accepted classification, but there are approximate ranges that are more or less homogeneous. For example, Counterpoint Research classifies the market into five segments: Entry ($0-150), Mid/Medium ($151-300), Mid-High ($301-400), Affordable Premium ($401-600), Premium ($600+) (Mishra 2019). This research will rely on a more approximate definition, whereby products priced below ~$200 are to be considered low price entry-level, products priced at ~$200-$600 – mid/medium-range, and ~$600+ – premium.
2.3 Case Companies Literature

This section reviews the theory used for analysing the case companies through analysing their products, pricing, and overall strategies. The product review will be done as a description of the existing products, their branding and differentiation and will not strictly rely on theory. Pricing will rely on Joel Dean’s 1976 concepts of skimming, penetration or market pricing. The overall strategies are assessed within the concept of Porter’s Generic Strategies.

2.3.1 Product and Price Review

“Product” and “Price” are part of the well-known marketing mix concept. The concept describes “the combination of different marketing decision variables being used by the firm to market its goods and services” (Singh 2012). The basic “formula” is called “4P”, standing for Product, Price, Promotion and Place. It offers a simple and memorable way to describe the foundation of marketing in a business as a “set of marketing tools that the firm uses to pursue its marketing objectives in the target market” (Kotler 2000).

The Product part is a physical product or service offered to consumers. The product is essentially “a combination of different attributes”, such as colour, design, technology, usefulness, value, i.e. any characteristics significant for consumers. The Price part is “the amount the consumer must exchange to receive the offering” (Borden & Marshall 1959) and may include the prices at any stage of sales and through any channels. In this research only prices of end sales will be examined. (Singh 2012.)

While analysing “Place” and “Promotion” parts would provide valuable insights into the business of the case companies, reviewing their product and price policies is sufficient to classify their strategies.

The pricing of certain products or product lines will be classified as “skimming”, “penetration” or “market pricing” strategies, as classified by Joel Dean in his “Pricing Policies for New Products”, published in Harvard Business Review in 1976. Skimming prices are relatively high (Monroe 2003) or “high in relation to what most buyers in a segment can be convinced to pay” (Nagle et al. 2011), while
penetration prices are relatively low (Monroe 2003), or “low relative to perceived value in the target segment” (Nagle et al. 2011). Market pricing strategies keep the price close to the market average. Another important characteristic is whether the pricing follows the market average, or evolves below or above. (Spann et al. 2015.)

2.3.2 Porter’s Generic Strategies

After evaluating Xiaomi’s products and pricing, their strategies may be classified wider. The main theory concept used for that purpose is Porter’s Generic Strategies, identified by Michael Porter in the books “Competitive Strategy” and “Competitive Advantage” from 1980 and 1985. Namely, the three strategies are overall cost leadership, differentiation and focus strategies. The concepts of these strategies are well-known in the business environment and are suitable for a general overview of the business strategies.

Cost leadership refers to a strategy of producing products at low costs with little differentiation and standardized products. The target group of consumers is usually wide and not strictly defined. This strategy involves such elements as “aggressive construction of efficient-scale facilities”, significant cost reductions. Despite the priority of minimizing costs, quality and service may not be overlooked. (Porter 1980.)

Differentiation may be described as a strategy of making a company’s offerings different or unique within the industry, and not primary aimed at price-sensitive buyers. However, the products or services within this type of strategy are still aimed at a wide consumer audience. There are many possible ways to differentiate offerings, such design, brand image, technology, or features. (Porter 1980.)

Focus strategies are those that target the needs of specifically defined target groups of consumers who are fewer than the target audience of the two previous strategies. The premise of this type of strategy is being able to serve a strategic cluster of the market more effectively than competitors who target broader audience. This means a firm achieves certain differentiation through better meeting the needs of their target groups, or offers lower costs for their target groups, or both. (Porter 1980.)
According to Porter, failing to develop a strategy in at least one of the three directions is "an extremely poor strategic situation", and a firm "stuck in the middle" is likely to suffer from low profitability.

The framework was further contributed by other writers. Peter Wright, in his 1987 "A Refinement of Porter's Strategies", explains that there are limitation boundaries regarding the choices of strategies, primarily in terms of the size of the firms and access to resources. Larger firms with easier access to resources are likely to primarily opt for cost leadership or differentiation, while smaller firms are largely confined to pursuing focus strategies. If larger firms decide to pursue a focus strategy, it is not likely to be their only adoption. (Wright 1987.)

Another important point of the traditional concept is that the cost and differentiation strategies are usually incompatible, i.e. achieving a cost leadership involves the emphasis on cutting costs, which usually requires standardizing the offerings, making it impossible to effectively differentiate the products. However, as argued by some researchers, hybrid strategies may also be possible. Notably, Porter is said to have revised his ideas in 2007 and have accepted the existence of hybrid strategies (Prajogo 2007).

According to Wright, adopting a focus strategy as a single option is usually not a viable option for larger firms. It may be therefore assumed that all large manufacturers within the smartphone market focus on either cost leadership or differentiation. They may also adopt a hybrid strategy with elements of both strategies.

3 Empirical Research

3.1 Market Analysis

This section presents the empirical research of the market. Market size, growth, competition structure, profitability and trends are to be examined.
3.1.1 Size and Growth

The size of the smartphone market may be expressed in different ways. Most commonly, market size is expressed in annual revenue. In 2019, the market was valued at $714.96 billion, and it is projected to surpass $1350 billion by 2025 (Mordor Intelligence 2020).

The history of the market demonstrates consistent growth of unit shipments to end users, albeit in 2019 a slight decline was recorded. It has been projected to continue growing, however, the coronavirus pandemic might bring the annual figure to a decline in the end of 2020. Figure 1 demonstrates the history of unit shipments to end users with 2019 and 2020 figures as projections.

![Figure 1. Worldwide Smartphone Unit Shipments to End Users (O'Dea 2020)](image)

According to DataM Intelligence (2020), the market is expected to grow at a CAGR (Compound Annual Growth Rate) of 12.20% from 2020 to 2027. Notably, in 2020 the market is likely to decline due to coronavirus pandemic. However, this effect is most likely to be temporary and the innate upward trend of the market is expected to continue once the pandemic is over. This means that the market participants may, on average, expect an increase in sales.
However, as noted by Mordor Intelligence (2020), the market growth is reaching the plateau stage due to high penetration levels and lengthening replacement cycles. On the other hand, it is argued that many countries, including China and India – world’s two largest markets, have penetration levels below 70 per cent, which may present considerable growth potential.

It may be therefore concluded that the overall growth trend is likely to remain positive, albeit it might be slowing down. However, this may vary significantly by the region, with sales in some business areas growing and stagnating or falling in others. The major market participants may expect sales volumes to grow (if all else remains unchanged). The overall sales growth should have a positive impact on price pressure. However, it is important to note the negative effects of 2020 coronavirus pandemic. While it is not possible to predict the impact precisely as of now, as the situation has not been resolved yet, in 2020 the market is likely to experience a temporary decline, and therefore a temporary increase in price pressure.

### 3.1.2 Market Structure and Profitability

Analysing the market structure and profitability allows to see a more detailed picture of the market. Figure 2 below represents various market structures that may observed in different markets, such as perfect competition, monopolistic competition, etc. (Knight & McGee 2012).

<table>
<thead>
<tr>
<th>Market Structure</th>
<th>Number of firms</th>
<th>Degree of differentiation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect competition</td>
<td>many</td>
<td>zero</td>
<td>Fragmented, commodity-like</td>
</tr>
<tr>
<td>Monopolistic or imperfect competition</td>
<td>many</td>
<td>some</td>
<td>Multiple niches, Localised competition</td>
</tr>
<tr>
<td>Oligopoly - undifferentiated</td>
<td>Some to very few</td>
<td>Low</td>
<td>Commodity-like with scale economies e.g steel</td>
</tr>
<tr>
<td>Oligopoly - differentiated</td>
<td>Some to very few</td>
<td>high</td>
<td>Strategic interdependence Large segments</td>
</tr>
<tr>
<td>Dominant firm</td>
<td>One to very few</td>
<td>high</td>
<td>Price leadership, high entry barriers, competitive fringe</td>
</tr>
<tr>
<td>Monopoly</td>
<td>single</td>
<td>Not applicable</td>
<td>Natural monopoly due to very high scale economies</td>
</tr>
</tbody>
</table>
As seen from the Figure 2, to classify the smartphone market it is first needed to estimate the number of participating firms and the degree of differentiation.

It may be said that the number of firms within the smartphone market is rather large. For reference, a popular technology website GSM Arena lists about a hundred smartphone brands (although some of them may be owned by the same companies). Another website, Phone Arena, lists over a hundred manufacturers. However, it is important to note that the market is dominated by only a few manufacturers, whether considering the smartphone market as a whole, or only the market of Android devices. The figures below will demonstrate the overall structure of the market.

Figure 3 demonstrates the shipments and the corresponding market share of the whole smartphone market. It should be noted that the report includes Apple as a market participant. However, Apple does not manufacture Android smartphones and is therefore not counted as one of the market leaders.

<table>
<thead>
<tr>
<th>Vendor</th>
<th>2019 shipments (million)</th>
<th>2019 market share</th>
<th>2018 shipments (million)</th>
<th>2018 market share</th>
<th>Annual growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung</td>
<td>298.1</td>
<td>21.8%</td>
<td>293.3</td>
<td>21.1%</td>
<td>+2%</td>
</tr>
<tr>
<td>Huawei</td>
<td>240.6</td>
<td>17.6%</td>
<td>206.0</td>
<td>14.8%</td>
<td>+17%</td>
</tr>
<tr>
<td>Apple</td>
<td>198.1</td>
<td>14.5%</td>
<td>212.2</td>
<td>15.3%</td>
<td>-7%</td>
</tr>
<tr>
<td>Xiaomi</td>
<td>125.5</td>
<td>9.2%</td>
<td>120.6</td>
<td>8.7%</td>
<td>+4%</td>
</tr>
<tr>
<td>Oppo</td>
<td>120.2</td>
<td>8.8%</td>
<td>116.0</td>
<td>8.3%</td>
<td>+4%</td>
</tr>
<tr>
<td>Others</td>
<td>384.3</td>
<td>28.1%</td>
<td>441.4</td>
<td>31.8%</td>
<td>-13%</td>
</tr>
<tr>
<td>Total</td>
<td>1,366.7</td>
<td>100.0%</td>
<td>1,389.4</td>
<td>100.0%</td>
<td>-2%</td>
</tr>
</tbody>
</table>

Note: percentages may not add up to 100% due to rounding
Source: Canalys Smartphone Analysis (sell-in shipments), January 2020
Based on the data from Figure 3, the market share for Samsung, Huawei and Xiaomi within the Android market may be calculated by excluding Apple. It should be noted that the smartphone market also consists of a small percentage of smartphones based on operating systems other than Android and iOS, which is not indicated in the report. However, the market share corresponding to those shipments is minor and does not exceed 2% of all shipments (Statcounter 2020). Therefore, due to the lack of information and the small numbers, this may be neglected. Figure 4 demonstrates the market share calculated within Android smartphone market (also including other minor operating systems).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung</td>
<td>298.1</td>
<td>25.5%</td>
<td>293.3</td>
<td>24.9%</td>
</tr>
<tr>
<td>Huawei</td>
<td>240.61</td>
<td>20.6%</td>
<td>206.01</td>
<td>17.5%</td>
</tr>
<tr>
<td>Xiaomi</td>
<td>125.5</td>
<td>10.7%</td>
<td>120.6</td>
<td>10.2%</td>
</tr>
<tr>
<td>Others</td>
<td>504.5</td>
<td>43.2%</td>
<td>557.4</td>
<td>47.3%</td>
</tr>
<tr>
<td>Total</td>
<td>1168.6</td>
<td>100%</td>
<td>1177.2</td>
<td>100%</td>
</tr>
</tbody>
</table>

As demonstrated by the figures above, the smartphone market is dominated by a small number of firms. About as much as 72 per cent of the whole smartphone market is occupied by five largest firms. In the market of Android devices, four major participants occupy a combined share of about 65 per cent. It may be therefore said that the number of significant market participants is rather small, which suggests that the market has characteristics of an oligopoly.
The other characteristic of the market to examine is the degree of differentiation. The product differentiation is a condition whereby “products are not perceived as equal on each of the product characteristics, including price”. A differentiated product offering is “perceived by the consumer to differ from its competition on any physical or nonphysical product characteristic including price”. (Dickson & Ginter 1987.)

The example of low differentiation from Figure 2 is commodity markets, e.g. steel. Certainly, it may be easily observed that the smartphone market is more differentiated than commodity markets, as the offerings sport a rather large variety of features advertised to consumers. Some examples significant technological features available in smartphones are display, resolution, processor, RAM, storage, front camera, rear camera (Kalyani 2018). Other significant dimensions of differentiation are branding and pricing.

It may be therefore induced that the smartphone market may be classified as a differentiated oligopoly. This implies that some characteristics of the market may be deduced. Oligopolies often result from “patented innovations or from taking advantage of economies of scale to produce at low average cost”, which may essentially provide significant benefits to consumers, but increase the price pressure for market participants and create substantial entry barriers (OpenStax Economics 2016).

The profitability within oligopoly largely depends on the degree of competition. In such markets, participants “do not typically produce at the minimum of their average cost curves”, and, lacking intensive competition they may also lack incentives for innovation and high-quality offerings (OpenStax Economics 2016). This also means they may afford to charge substantial price premiums. However, within the Android smartphone market the competition is known to be rather intense. As explained further, Apple and its iOS-based products are an exception.

The difference between Apple and other smartphone market participants is very notable. While Apple’s industry unit sales are about 15 per cent, its operating profit captures over 80 per cent of that of the whole market. At the same time, left
altogether with about 20 per cent of the market operating profit, Android smartphone vendors are not nearly as profitable. (Takakuwa 2019.)

Interestingly, in the fourth quarter of 2016, Apple’s share of the total profit in the smartphone market was recorded at 104 per cent, as some other producers showed negative results and lost money (Reisinger 2016).

The conclusion that follows from such profit asymmetry is that the customers of Apple, as compared to Android customers, are likely to be less price sensitive and tend to have higher purchasing power. Those purchasing Android smartphones, reversely, might often be more concerned with the price. This is confirmed, for example, by a survey conducted by Slickdeals in 2018 – iPhone users’ average salary was $53,251, with Android users earning an average of $37,040 (Cision PR Newswire 2018).

One of the reasons behind the profit asymmetry is the entry barriers. While Android has been historically licensed by Google (free of charge) to any manufacturers that meet certain requirements, Apple’s iOS has been restricted to devices produced by Apple itself. This has led to an abundance of offerings from various vendors on the Android smartphone market and consequent price pressure, while the market portion controlled by iOS devices has been solely that of Apple. And while the intensifying competition among Android manufacturers affects Apple as well, as their users may see Android devices as a replacement, it still allows Apple to dominate the industry operating profits.

As explained by Kentaro Takakuwa (2019), the effect of the fierce price competition on the Android handset market forces the prices to decline towards the marginal production cost. Subsequently, the profitability of Android smartphone manufacturers continues to decline.

It is also suggested that over time the smartphone market has evolved into a Stackelberg structure, whereby Apple is the market leader, setting the direction and enjoying high profits, while the rest of the market participants are following the moves of the leader (Feng & Yu 2019). However, in the recent years Apple has also been sometimes criticized for lack of innovation and increasing similarity of its product line. Arguably, other market participants do not always simply follow
the decisions of Apple, but contribute to the innovation on their own and have their own strategies. This means that the market structure and profitability within the Android market may be also shaped by the actions of its participants, albeit within certain limits.

It may be concluded that the market of Android smartphones is a differentiated oligopoly with substantial price pressure. The only vendor of the whole smartphone market that enjoys high profitability is Apple, which does not belong to the Android market. Intense price competition among manufacturers of Android handsets over the years has been driving the selling prices down and severely limiting the profits. This is not likely to change in the near future, unless, for example, Android vendors develop highly differentiated products that would allow to increase the price premiums. Another scenario that would ease the price pressure is a significant portion of Apple customers switching to Android devices, bringing their higher purchasing power.

Profitability may also vary in different price segments. Typically, lower price segments present consumers that are more price-sensitive and are looking for higher value for the price they are ready to pay.

3.1.3 Market Trends

This section addresses some trends and projections within the smartphone market that may affect the current strategies and decision-making. Specifically, the average selling price, price segment sales trends and technological features are examined.

3.1.3.1 Average Selling Price

As known, smartphone is an electronic product containing integrated circuits as its major component. It is thereby argued that the price trend of the smartphone market should follow Moore’s law, which implies that the cost of integrated circuits declines in an exponential manner (Feng & Yu 2019).

However, this is not supported by the price trend over the past several years. According to projections by Statista, the global ASP (average selling price) of
smartphones will increase from $282 in 2016 to $317 in 2021, and the same positive trend is expected within the market of Android handsets (O'Dea 2020). In 2018, ASP grew by 9 per cent year-over-year, which was the highest growth recorded so far (Mishra 2019). The growth contribution was mostly made by the premium price segment.

Figure 5 displays the trends over various segments in 2018. As seen from the graph, the most growth was recorded in the premium price segment of $600 and above. Some growth was also recorded in the mid-range of $151-300.

Figure 5. Net Sales by Price Bands in 2018 (Mishra, V. 2019)

However, the ASP growth does not reject the power of Moore’s law. As the costs of the key components continues to decline, the cost of making the same smartphone decreases every year. Some potential reasons behind the ASP growth might be intensifying differentiation of products through using innovative and more expensive technologies, investing more into marketing or research and development, or charging higher price premiums in the high-end segment. For example, one of the key components of a smartphone is the CPU chip. Technology websites claim that the price for a Snapdragon 865 5G CPU is about 50%
more than that of the 4G counterpart (Banerjee 2020). The growth the mid-range segment might be a sign of the effects of the Moore’s law – it may be speculated that phones that are good enough to satisfy many consumers are becoming cheaper and fall into the mid-range category.

This is supported by Strategy Analytics’ statistics of the best-selling Android phones in the first three months of 2020. According to the research powerhouse, the market of Android handsets “is increasingly dominated by more affordable models”. As commented by a publisher Jon Porter on “the Verge”, only one of the six smartphones belongs to the premium price segment. The author then speculates that users are becoming increasingly price-sensitive and want affordable “value-for-money” devices, and that the Android market is “entering a post-premium era”. (Porter 2020)

Thereby, while the ASP of Android smartphones has been and might continue increasing, there is evidence that the innate production costs are, in fact, declining, according to Moore’s law. The ASP is distorted by the high growth in the premium segment where vendors charge the highest premiums. Despite the premium segment growth, it may be said that “value-for-money” smartphones that most consumers find attractive are becoming cheaper and growing in popularity, as shown by the growth in the mid-range segment and by the fact that most of the best-selling Android smartphones are in the mid-range price segment.

It may be therefore argued that further growth may be expected in the mid-range price segment. The growing popularity of affordable smartphones and the increasing value these devices offer to consumers (allowed by decreasing costs of key components) may increase the overall price pressure on the smartphone market, as it may become harder for vendors to justify the higher prices of premium smartphones in the future.

3.1.3.2 Technological Features

There are certain technologies and features that many of the smartphone manufacturers are actively researching and investing into. Following these trends is of vital importance to the vendors as neglecting them may result in falling short of competitors and losing market share.
Perhaps, the largest trend in terms of anticipations and attention is the adoption of commercial 5G networks. As Huawei reported in the end of 2019, over 60 carriers had then introduced 5G networks and more than 180 devices with 5G support had been released. Huawei projects that by 2025 58 per cent of the world’s population will have access to 5G. (Huawei Investment & Holding Co., Ltd. 2019.)

It may be indeed observed that an increasing number of smartphone models offer 5G-support in 2020, including the latest product by Samsung, Huawei, Xiaomi and other major vendors.

Another trend that has caught attention of the public and the manufacturers is the foldable devices. Speculations of such developments actively emerged in 2018 with significant media attention. For example, as reported by technology news media the Verge in January 2018, LG had filed for a patent for a “mobile phone with a flexible display which can be folded in half.” Another internet news source CNET reported in November 2018 that Samsung had presented its first foldable smartphone and shared its plans to launch mass-production within months. Since then, many other vendors have launched efforts into development of such devices, and some have released the products. For instance, as of May 2020, Galaxy Fold is available to consumers in Finland at a price of €1600-2100 (as may be observed from price monitoring services, such as Hintaseuranta.fi). But, apparently, in 2020 foldable devices remain rather expensive for the mass market, priced well above the average selling price within the market, as well as above the prices in the premium segment.

Another increasingly popular feature is the higher refresh rate of the screens. As known, the refresh rates of the visual displays are measured in Hertz (Hz), with one 1 Hz reflecting one update of the screen image within a second. So far, the industry standard for most commercial displays has been 60 Hz, meaning that the displays would refresh the picture 60 times per one second. In 2019-2020, more and more models come with higher refresh rates of 90Hz or 120Hz as one of their key selling points. Some recent examples listed on the technology website Android Authority are Samsung Galaxy S20, OnePlus 7T, Realme X50 Pro 5G, Asus ROG Phone 2, Google Pixel 4 XL.
Multiple camera setups and increasing sensor resolutions is also a noticeable development of the recent years. Unlike just a few years ago, in 2020 practically any smartphone in mid-range and higher price segments sports more than one rear camera. At the same time, the resolution of the main sensor in some models already exceeds the point of 100 million pixels (megapixels). Some phones with a camera powered by a 108-megapixel sensor are Samsung Galaxy S20 Ultra, Xiaomi Mi 10 Pro, Xiaomi Mi Note 10, Motorola Edge Plus. Interestingly, Xiaomi’s Mi Note 10 is referred to as a mid-range device (for example, by a popular technology website TechRadar). It is indeed priced closer to medium range than premium segment, starting from €499 in Finland’s internet retail store verkko-kauppa.com. This might be another example of smartphones becoming increasingly competitive within more affordable price categories.

3.2 Case Companies Product and Price Review

This section will review the products of the three firms and the pricing strategies used. Product sections aims to describe the product in terms of their branding and differentiation. Price sections describe the pricing policies as either skimming, penetration, or market pricing.

Samsung, founded in South Korea in 1938, is a company with long history. As of 2020, Samsung is the world’s largest smartphone manufacturer based on the shipment count. It may be said that Samsung has a strong brand image that spans across many technology-related markets.

The second largest vendor of Android smartphones is Huawei. Founded in China in 1987, it is also a well-known company with an established brand image and a significant market share.

The third case company is Xiaomi, which is also based in China. It is a relatively young company, founded in 2010. Despite its “young” age, Xiaomi has managed to achieve substantial growth, being world’s fourth largest smartphone manufacturer in 2019 (third in Android market).
3.2.1 Samsung: Products

In 2020, Samsung offers their smartphones in a clear line-up. The major product lines are branded as Galaxy S, Galaxy Note, Galaxy A and Galaxy M. The first two offer premium (flagship) model at higher prices, while the latter two are formed of more affordable offerings. Galaxy Z Flip and Galaxy Fold are two other lines that offer innovative designs, but these have not reached the popularity of the traditional smartphones yet. Only the major line-ups “S”, “Note” and “A” are examined in detail to simplify the research.

The Galaxy S series is where Samsung intends to offer the most. As described on the company’s official website, “if it’s innovative, the Galaxy S Series has it in spades. Revolutionary cameras. A battery that wirelessly charges other batteries. An expansive display that clears the way for your creative vision” (Samsung 2020). As may be observed, such terms as “innovative” and “revolutionary” are used to describe the product of the line. The offered specifications are highly competitive. Some features of the latest flagship model, Galaxy S20 5G (as well as S20+ and S20 Ultra), are latest high-end processors – Exynos 990 or Qualcomm Snapdragon 865, AMOLED displays with 120Hz refresh rate support and multiple camera setups with up to 108-megapixel sensor resolution. One apparent key feature is the “100X Space Zoom”, as marked at rear side of the smartphone. (Samsung 2020.)

The overall trend of sales volumes within the Galaxy S-line may be described as decreasing. It may be worth mentioning that in the earlier years of the Android market, the brand “Galaxy” was sometimes synonymous to Android smartphones altogether, denoting some very high popularity of the Galaxy phones. As described by South Korea Electronics Industry Media “The Elec”, the sales of Galaxy S-smartphones have been steadily declining over the years. It is also reported that “Samsung has also radically cut its demand for the S20 parts.” (Lee 2020.)

One of the apparent reasons behind the struggling sales of the latest S-series model is the coronavirus pandemic, which affects all of the market. It may also be speculated that as Samsung consolidates their efforts towards the affordable
segment with the launch of Galaxy A-series and its “value-for-money” offers, and at the same time keeps increasing the price tags for every new flagship model, it becomes harder to convince the consumers to pay the higher prices for flagship devices.

The Galaxy Note series is another product line of high-end smartphones. As may be seen from the description the official website, it offers highly competitive specifications, similarly to Galaxy S series. The distinction is an addition of a stylus-pen that may be used for handwriting or drawing. Apparently, the primary intended audience of Galaxy Note products are business customers, as may be seen from one of the product webpages on the company’s website.

The official description of the Galaxy A series is as follows: “The Galaxy A series has everything you want in a smartphone, like high-capacity, fast-charging batteries, multi-lens cameras and Infinity Displays—at the incredible value you deserve.” One of the key terms here is “the incredible value”, indicating the more affordable pricing of the line. At the same time, it is emphasized that the products of the line do offer competitive features. One of the products of the line, Galaxy A51, has been named as the world’s best-selling Android smartphone of the first quarter 2020 (6 million units shipped with 2 per cent market share).

Evaluating the products from the Galaxy A-series technologically, it may be said that Samsung does not appear to offer particularly innovative products in this product line. If compared to the offers of such competitors as Xiaomi, it may be noted that similarly priced products of Samsung technically offer less. For example, Galaxy A41 smartphone, offered by a Finnish retail store Gigantti for a price of €299 in May 2020, sports such features as a MediaTek Helio P65 processor, 64 GB internal memory and a 3500-mAh battery. The popular benchmark service Antutu, whose analytics are intended to give an estimate of a smartphone’s performance, gives Galaxy A41 a score of 183200. At the same time, Xiaomi’s Redmi Note 8 Pro, while price in Finland at €279, offers 128 GB storage capacity, MediaTek Helio G90T processor and 4500-mAh battery. The Antutu score of the phone is 291742. Even though the experience that smartphones deliver to users is usually subjective and is a matter of taste, it may be assumed that most users
would agree that Xiaomi’s offering would have, technologically, noticeably more to offer at the same price.

It thereby appears that Samsung does not strongly differentiate their products in lower price categories with technology and innovation. Rather, it appears that the differentiation mostly relies on the strong brand image. However, judging from the figure 6 below, which represents the best-selling smartphones of the first quarter 2020, this strategy seems to be effective so far.

![Figure 6. Best-Selling Android Smartphones Q1 2020 (Strategy Analytics 2020)](image)

As may be observed from the chart, three of the six top-selling devices are Galaxy A-series products, and one is Galaxy S-series. A report by Canalys claims that in Q2 2019, out of 18.3 million units shipped by Samsung in Europe, over 12 million were A-series devices. It may also be speculated that despite lower shipments count, Galaxy S-series remains the priority for Samsung due to higher profitability.

Samsung also addresses the latest industry trends with offering some foldable devices. However, as of 2020, these remain very expensive, and the technology is not yet thought to have matured enough for the mass market.
3.2.2 Samsung: Price

The two major high-end lines are Galaxy S and Galaxy Note, and the products in the line are priced accordingly. According to a popular internet tech website Android Authority, Galaxy S20 was priced starting from $999 at the release in the US, $100 more than the previous model. The difference is even more striking with the price of the very first model of the S-line, which was about $400. (Brown 2020.)

This idea of the pricing structure may be obtained from the cost breakdown of the products. It is estimated by a technology analytics company TechInsights that the cost of making Samsung Galaxy S20 Ultra 5G is $528.50 (Yang & Fontaine 2020). Although this does not account for such expenses as marketing, it is evident that the final price, which is well above a $1000 mark, is significantly above the product costs. For example, in May 2020, the device is offered in Finland by Elisa at a price of €1399.

The assumption that Samsung’s flagship lines are priced with rather high premiums is further supported by depreciation statistics provided by trade-in analytics company BankMyCell. According to the data, 10 latest (as of late 2019) Galaxy S- and Note series devices lost roughly from 35 to 49 per cent of the initial value when traded in. This suggests that the flagship smartphones may be priced well above their innate value.

Thereby, the pricing of the “S” and “Note” is relatively high and may described as a skimming price strategy, whereby the vendor’s (Samsung’s) intention is to offer superior products at prices significantly higher than market average. As discussed in the “market trends” section of market analysis, the ASP of smartphones in the recent years has been around $300 mark, while the release price (US) of the latest Galaxy S20 was starting from $999. It is important to note that as a premium product, Galaxy S20 smartphone undoubtedly costs significantly more to product than an average smartphone. As explained previously, the production costs of the most expensive version (S20 Ultra 5G) are estimated at $528.50, which is already much higher than the market ASP. However, the production
costs alone are obviously not the only cost driver with these products, and a re-
markable price premium is likely to be present. Also, as is the case with most
products in the higher-priced products on the smartphone market, the price sub-
sequently experiences a substantial decrease, as the market is very dynamic,
and new and superior models are frequently released. Significant price de-
creases may be another sign of price skimming.

The pricing of the “A”-series follows the opposite model – the prices are relatively
low or moderate. The description of the series on the official website includes: “a
unique yet affordable package” (Samsung 2020).

Due to lack of public information on the production costs of the Galaxy A-series
devices, it is harder to analyse the price premiums Samsung includes in the price
tags for these models. The Wired, an online magazine, groups the latest A-series
offerings into three price groups, $110-180, $250-400 and $500-600, which may
be described as low (entry-level), medium and upper-medium. While these prod-
ucts are substantially cheaper than flagship offerings, they are aimed at offering
the “incredible value” and providing competitive features, as mentioned in the
“Product” part. For example, some of these phones offer support for 5G networks.

As the selling prices are significantly lower than those of high-end devices, it may
be assumed that price premiums are lower as well. As the prices of various mod-
els vary in different ranges, it is not possible to classify the pricing of these models
as either “penetration” or “market pricing”. Some of the models are priced lower
than ASP (which, as discussed previously, is estimated to be around the $300
mark in 2020), and some significantly higher. The pricing of A-series may there-
fore be described as a combination of penetration and market-pricing.

As mentioned previously, Samsung’s products in lower price categories do not
offer as much as products of some of their competitors at similar prices. A possi-
ble conclusion that may be made from the comparison of similarly priced Xiaomi’s
and Samsung’s offerings is that Samsung’s devices have lower production costs.
It may be therefore assumed that even in the lower priced market segments,
Samsung prefers to keep its profit margins above the minimum and is not likely
to use penetration pricing. However, as the exact production costs of Galaxy A-
series are not known, it may also be possible that Samsung is less efficient at optimizing the costs than Xiaomi, and is actually pricing the products with minimal profit margins.

Thereby, Samsung’s overall approach to pricing may be described as a combination of various strategies. Most of the unit sales come from the more affordable Galaxy A-series, which are most likely priced with market-pricing strategies, whereby Samsung does not raise the prices too high, but still keeps the profit margins above the minimum. The higher-end Galaxy S- and Note series are likely to be the most profitable ones with their skimming prices. Generally, across all price segments, Samsung seems to refrain from lowering its profit margins to the minimum. This may be explained by the strong branding of Samsung – as is usually the case with stronger brands, customers tend to see certain value in their products and are ready to pay higher prices. Overall, Samsung is effectively capturing their market share in both lower and higher price segments of the market.

3.2.3 Huawei: Products

Huawei’s smartphones are branded under various product lines. However, the differentiation does not appear to be as clearly set as with Samsung’s devices. The official website of Huawei lists several product lines: Mate, P, Nova, G, Y and Honor (Huawei 2020). As may be judged from the company’s website Mate- and P-series are high-end series. Other lines appear to be targeted as lower price segments.

However, the Mate- and P-series are not exclusively premium, and various products within the lines are priced at very different points. As an example, Huawei P40 Pro 5G is priced at €1049 in Finland’s verkkokauppa. This price puts the product into the premium category and suggests a profit margin above average. The high-end products of the P-series seem to largely rely on a differentiation point of the smartphone camera – in partnership with a camera company Leica, Huawei develops innovative high-end cameras.

Another example of the high-end series is Huawei P30 Pro. At the launch, its price in the US was set at $899.90 (as seen from various media reports of the time, for example, from TechRadar website). These price tags indicate that these
smartphones may be placed in the upper-price category. At the same time, Huawei P Smart Pro, which belong to the same branding line, is priced within the medium range: Finland’s verkkokauppa offers the product in May 2020 at €298. The difference indicates a lack of clear price differentiation between product lines.

Overall, Huawei also offers many models at more affordable prices. Unfortunately, there is no public information on what specific smartphones by Huawei are the most popular. Some of the more affordable models offered by most retail stores in 2020 are Huawei P Smart, P40 Lite, Nova 5T.

Similarly to Samsung, Huawei addresses the emerging industry trend of foldable smartphones. As is the case with Samsung, the technology behind these devices have not yet matured to be affordable in the mass market at prices a significant number of consumers would be willing to pay.

### 3.2.4 Huawei: Price

Huawei appears to pursue certain profit margin goals. In 2017, according to a report by Reuters, Huawei announced that it targeted a net profit margin of 7%. This may be called a rather moderate profit margin. As seen from Huawei’s 2019 annual report, the net profit margin was recorded at about 7.3 per cent.

For comparison, the overall net profit margin of Samsung in 2019 was about 9.5 per cent (however, this figure includes Samsung’s overall profitability across various different divisions) (Samsung 2019). This means that Huawei’s profit margin within the business as a whole is slightly lower, which might suggest lower price premiums in their products than those of Samsung as well.

In a 2019 teardown report by Nikkei Asia, the cost of components of Huawei P30 Pro was estimated at $363.83, with the final retail price at launch ($899.90) more than double that number. This suggests skimming pricing with high profit margins in the premium product category. However, it is not possible to make a certain conclusion on how high Huawei rises the final prices above all of the costs. For comparison, Samsung’s current most expensive flagship device (May 2020), priced at €1399 in Finland, is noticeably more expensive than Huawei’s €1049 Huawei P40 Pro.
According to an independent study by Gao Guanghui (2018), Huawei’s pricing in the higher price segment is a combination of different types of pricing. Mainly, to improve the sales, products are priced with cost-oriented pricing strategy, meaning that certain desirable levels of profit are pursued. This seems to be in line with Huawei’s announcement of targeting a 7 per cent net profit margin. Overall, in the premium market, Huawei does not seem to have a very clear pricing strategy and targets both profit and sales volumes. While its profit margins seem to be lower than those of Samsung or Apple, its prices still may not be called very low penetration prices.

The products offered within lower price ranges (e.g. Huawei P Smart Pro at €298, as mentioned previously) may not have as high profit margins as the premium products by definition. In this category, Huawei offers products that are competitive enough technologically. As discussed previously, within similar price ranges, Xiaomi’s Redmi Note 8 Pro was able to offer more than Samsung’s Galaxy A41. Technologically, with P Smart Pro, Huawei appears to be slightly superior to Samsung and fall slightly behind of Xiaomi. Antutu performance benchmark of P Smart Pro scores 283500, placing it slightly behind Xiaomi (Samsung: 183200, Xiaomi: 291742). It also sports a slightly weaker battery than Xiaomi. In some other features Huawei’s product may be called superior: the screen is slightly bigger than Xiaomi’s and the “Pop-Up” camera technology in contrast to Xiaomi’s notch camera. Overall, it may be said that devices are largely on par with each other. Even though comparing these features does not directly translate into the product manufacturing costs, it may be speculated that the costs of Xiaomi Redmi Note 8 Pro and Huawei P Smart Pro are similar. As the latter is priced slightly higher, it may be also assumed that its price premium is higher as well.

These findings are supported by the Huawei’s CEO Ren Zhengfei statements – in 2010, he announced that his long-term view of the strategy is to focus on the quality of product rather than simply on lowering prices. In fact, he mentioned that it would be important to avoid lowering the prices significantly and not “corner” Western companies through lower prices. (Zhengfei 2010.)

Therefore, it may be concluded that Huawei employs various pricing models in various segments accordingly. It may be using price skimming in the premium
segment, although still pricing their flagship devices lower than its nearest competitor Samsung. In lower price categories, their pricing may be described as “reasonable”, not very high, but not very low either. However, it seems to universally refrain from lowering prices too much and to avoid penetration pricing. It may be thus speculated that Huawei’s pricing is generally close to market-pricing.

3.2.5 Xiaomi: Products

Xiaomi’s products, again, are differentiated within different product lines – Mi, Mi Note, Redmi and Pocophone (as listed on the official website). The flagship line is Mi series; Mi Note appears to be a more affordable line; Redmi series is known to be strongly positioned as a cheaper, “value-for-money” line; Pocophone is an upper-mid-range line. Additional brands are Black Shark and Meitu, targeted at gamers and female users (Xiaomi 2019).

The multi-brand strategy is explained in Xiaomi’s 2019 Annual Report. Since January 2019, Redmi and Xiaomi (Mi) are intended to be developed as separate brands with separate strategies. Xiaomi is positioned in mid- and high-end market, focused on advanced technologies and sold through both online and offline channels. Redmi series’ main target is price-performance ratios and it is sales are focused on online channels (meaning lower costs).

As of May 2020, the “maximum” flagship offerings in the Mi line are Mi 10 and Mi 10 Pro, with the latter priced at about €999 (~$1100) in Europe (CNET 2020). Mi 10 Pro may be called one of the best Android smartphones of the time, judging, for example, from its Antutu benchmarks. The figure below is the five highest-ranking Android smartphones in May 2020.
As seen from the ranking, Xiaomi’s Mi 10 outperforms Samsung’s flagship product S20 Ultra 5G. While it does not necessarily mean that Xiaomi’s product is better in all ways, it gives an estimation, which shows that the devices are at least very comparable to each other. At the same time, it may be noted that Xiaomi’s product is considerably cheaper than Samsung’s.

In lower price categories, Xiaomi offers, for example, Mi Note 10 in the upper-mid-range. Launched in 2019, the most notable selling-point of this smartphone is 108-megapixel camera sensor. The selling price in Europe at the launch was around €549 ($609) (Mashable 2019). In May 2020, this device remains the only smartphone in the mid-range category with a 108-megapixel camera sensor.

The medium and entry price ranges are addressed by the Redmi series, which, as mentioned, is focused on price-performance ratios. As shown previously within the analysis of Samsung’s product (Figure 6), Redmi 8 and Redmi Note 8 were among the best-selling smartphones in Q1 2020. Also, it is revealed in Xiaomi’s 2019 Annual Report that Redmi Note 7 shipped more than 1 million units in less than a month. Redmi Note 8 Pro was mentioned previously in comparison with Samsung’s Galaxy A41 and Huawei’s P Smart Pro – by specifications and performance, Xiaomi’s device was ahead of Samsung’s and approximately equal to Huawei’s. However, Xiaomi’s product was priced slightly below both competitors.
Interestingly, according to Xiaomi, their products are not at the core of their business. The company describes their business model as a “triathlon” model – hardware, internet service and new retail (Jun 2018). In 2014, Xiaomi’s Vice President Hugo Barra claimed that the company is “an internet and a software company much more than… a hardware company” (Treadgold & Reynolds 2016). Thus, the company regards their hardware products as a way to sell their core service offerings, instead of their core competence.

3.2.6 Xiaomi: Price

As discussed, Xiaomi describes its model as a “triathlon” of hardware, internet service and new retail, whereby the hardware is not a core offering but rather a way to sell their services. However, while not being the only company that offers additional services along the smartphones as hardware products, Xiaomi sets their pricing policy aside from the competition.

In 2018, Xiaomi’s co-founder Lei Jun announced that the profit margin of the whole company’s hardware business, including smartphones, will never exceed 5 per cent. This was explained as part of their business model, whereby products would be sold at prices close to cost. By doing so, the company aims to earn long-term support and trust of the users. Apart from keeping the price premiums minimal, Xiaomi also aims to reduce the costs by focusing on online distribution channels and increasing the cost efficiency of offline channels.

This is supported by Xiaomi’s 2018 Annual Report, where the pledge to maintain the hardware profits below 5 per cent is repeated. The overall mission is described as “to relentlessly build amazing products with honest prices to enable everyone in the world to enjoy a better life through innovative technology”. The company applies the term “honest” to their pricing, further emphasizing their low-price model.

Apparently, the pledge to maintain a low hardware net profit (and low price premiums) applies to their whole hardware business, with no distinction between the high-end and low-end smartphone market, albeit the price premiums may be expected to vary. As an example, Redmi devices (low- to mid-range segment) may be expected to have even smaller price premiums than other product lines, as
Xiaomi emphasizes the price-performance ratio of these devices, and their target groups are more price-sensitive.

It may be therefore said that with their smartphone products, Xiaomi universally employs aggressive penetration price strategies. However, Xiaomi does not rely on pricing as its sole advantage, but rather uses it as a part of a wider strategy.

### 3.3 Strategies

This section, based on the findings of product and price analysis, will evaluate the strategies of the three firms based on the concept of Porter’s Generic Strategies. As discussed within the theory, smartphone market vendors are likely to focus on either cost leadership or differentiation, or pursue a hybrid strategy with elements of both strategies.

As discussed within the market analysis, the Android smartphone market may be described as a differentiated oligopoly with intense competition, substantial price pressure and relatively low profitability. Also, the Android market tends to have consumers who are, on average, more price-sensitive than consumers in iOS (Apple) market. Therefore, it may be expected that most successful vendors address the higher price-sensitivity of the market even if they offer differentiated products.

#### 3.3.1 Samsung

Samsung is a company with a strong brand image that operates in a wide range of industries. As described previously, it offers various product lines in all price segments.

It has been said that Samsung appears to avoid minimizing their price premiums and relies on the strong brand differentiation even in lower price segments. The Galaxy S- and Galaxy Note series offer premium devices at prices that appear to include relatively high price premiums. These product lines are intended to be differentiated by high-end features and sometimes innovative technologies. For example, the latest model, Galaxy S20 Ultra offers what Samsung markets as a “100x Zoom”. With these products, Samsung clearly intends to differentiate their offerings and follows a differentiation strategy.
Some products are apparently intended at more specific target audiences. Galaxy Note series is marketed as a product for business-related people. Foldable smartphones with the very latest unique technologies are aimed at tech-savvy early adopters of new technologies. Thereby, as an additional strategy, Samsung pursues a focus on some more narrow consumer groups.

The strategy is less clear with the lower-end market. While the Galaxy A-devices are substantially more affordable than premium smartphones, Samsung prices them above its major competitors Huawei and Xiaomi, likely relying on the strong brand image. It may be therefore suggested that Samsung’s primary intention here is to offer differentiated products with prices above average. While the price premiums are apparently not very high and Samsung takes a low-cost position with relatively moderate pricing, it may be more of a reaction to aggressive pricing of the competition rather than Samsung’s own initiative to pursue cost leadership.

Thereby, it may be suggested that Samsung’s major strategy is differentiation, universally based on the strong brand image, and in the premium category, also on the features and technology. Focus strategy may be noted as an additional policy with some products. In the lower-end market, price pressure is likely to be forcing Samsung to lower the prices, however, Samsung refrains from pricing its products below average.

The major reason behind Samsung’s strategic choice may be its strong brand image which allows to successfully compete on the basis of differentiation. Samsung’s users recognize the brand and are ready to pay the price above the market average. The pricing in the lower-end segments is likely to be significantly affected by the price pressure, but the brand differentiation allows Samsung to retain its positions.

3.3.2 Huawei

Huawei is 2020's world's second largest smartphone manufacturer and it may be seen as the major challenger for Samsung (and Apple). Huawei’s branding, differentiation and pricing appears to be less clear than those of Samsung: in the same product lines, there are both mid-range and premium devices.
According to Huawei’s reports, the company is generally pursuing a 7 per cent profit margin. This is a relatively modest margin, lower than that of Samsung but higher than that of Xiaomi.

As mentioned, Huawei’s CEO Ren Zhengfei has express his strategic vision of aiming to develop products of higher quality and to avoid excessively lowering the prices. Zhengfei stated that the company does not have a strategic intention to “corner” the competition through low prices. Thus, it may be inferred that Huawei does not pursue cost leadership strategies of gaining an advantage of the lowest prices.

Indeed, the company’s and CEO’s statements indicate Huawei’s strategic desire to focus on better, differentiated products. This may be supported by the products Huawei offers in the premium segments – for example, the P-series smartphones are differentiated with innovative cameras co-developed with Leica.

However, Huawei does not appear to have as strong brand image as Samsung does. Historically, Huawei has been known as Samsung’s competitor that began with aggressive pricing to gain its market share. While its recent strategy and actions indicate a switch to stronger product differentiation and less focus on cost leadership, it may be suggested that Huawei is not yet able to fully rely on the differentiation strategy like Samsung does.

It may be also suggested that Huawei employs elements of focus strategies – for example, its strongest differentiation point in the flagship devices has been the camera, which appeals to photography-enthusiasts. It has also offered foldable smartphones, addressing the innovative-minded consumers.

In general, Huawei’s strategy may be described as a hybrid of product differentiation and cost leadership with additional focus strategy. The company’s strategic vision indicates pursuit of stronger product differentiation.

However, it would be important to note that Huawei currently faces a challenge of having its access to Google services limited due to political reasons. It may be a significant threat to Huawei’s business, and Huawei might have to make radical changes within its strategy and business model. As of 2020, Huawei remains the
second largest vendor within the Android market, but its position may be affected by the situation. This may force Huawei to adopt either a new differentiation strategy or an aggressive cost leadership.

The strategy choice of Huawei may be explained by a weaker brand image than that of Samsung. Historically, Chinese brands have been universally seen as inferior to brands based in other countries. While the situation has changed, it may not be yet said that Huawei has achieved a brand image as strong as that of Samsung, forcing Huawei to attain a hybrid position.

3.3.3 Xiaomi

Xiaomi is the third case company. As described, Xiaomi pursues a very clearly defined strategy, whereby its hardware (smartphones including) business is seen by the company not as their core business, but a tool for selling their other services. In fact, representatives of Xiaomi have referred to the company as a service business.

Xiaomi claims that it targets to keep its net profit margin below 5 per cent in order to offer “honest” prices to consumers. It has been emphasized that the company’s smartphones are sold at prices close to their manufacturing costs. This is done in order to earn trust and support of their users, who are also the audience for their service business.

In general, Xiaomi’s business model is different from traditional models. Treating the hardware business as a channel for selling services may be compared to the service-based models of such companies as Google and Facebook. These companies offer their services completely free of charge to consumers while making large profits on advertising. For that reason, Xiaomi’s smartphone business may not be directly classified as either differentiation or cost leadership, as the business model itself is very different from the traditional ones – direct profit does not play a key role in Xiaomi’s smartphone business.

If the hardware business is analysed per se, the aggressive pricing policy and innovative cost-saving measures employed by Xiaomi (focus on online channels, marketing savings) suggest a strong preference for the cost leadership. However,
it may not be said that Xiaomi’s products are completely standardized and are not differentiated. In fact, in terms of technology and features, the smartphones offered by the company are often on par or even superior to more expensive products of their competitors, in all price segments. This suggests that Xiaomi pursues a hybrid strategy of cost leadership and differentiation.

Some of Xiaomi’s sub-brands (Black Shark, Meitu) target more narrow consumer groups – gamers and female users. Hereby, the focus strategy is pursued as an addition to the main business line.

Thereby, Xiaomi’s hardware business follows a hybrid of cost leadership and differentiation. An additional focus strategy is employed to target some smaller consumer groups. In general, the strategy of the smartphone business is not isolated but is a part of a larger service-based model.

Xiaomi’s strategies may be seen as a very innovative way to adapt to the low profitability and intense price pressure of the Android smartphone market. Xiaomi has had the strategic vision to recognize the challenges of improving the profitability within the Android market by traditional means. As a young company, it would not be likely to be able to challenge such giants as Samsung and Huawei with stronger brand images and successfully differentiate itself. Attaining a cost leadership strategy, on the other hand, would allow for a higher chance of gaining some market share, but the profitability within the competitive Android smartphone market would not be high. Moreover, competing solely on the price-basis is inherently weaker strategically. Xiaomi’s service-based model, on the other hand, allow to successfully employ a hybrid strategy that addressed both the price-sensitive consumers and the highly competitive market, while creating profits through a business model wider than just hardware.

3.3.4 Strategy Analysis and Recommendations

This section will provide an answer to the primary objective of the research – develop general recommendations for other market participants or new entrants to the global Android smartphone market.
As pointed out previously, the global smartphone market, and, specifically, the Android handset market, may be classified as a differentiated oligopoly. It is dominated by a rather small number of firms – in 2019, within the whole market just the five largest manufacturers occupied over 70 per cent of the unit shipments count. The oligopoly is differentiated, and, within the Android portion of the market, the competition is intense and the price pressure is high.

Most of the industry profits are captured by Apple, which is focused on the premium segment of the market. Apple’s products use iOS – a proprietary platform restricted to the company’s own products. This means that it is impossible for other manufacturers to use iOS in their own devices. They are therefore left with two options – use the open-source Android operating system or some other platform. However, as the market is currently heavily dominated by iOS and Android with most of the mobile software developed for the two platforms, competing with these platforms would be extremely difficult.

This implies that the most viable option for other market participants is to use Google’s Android in their smartphones. The market of these devices, despite being largely differentiated, offers rather low profitability – as mentioned, most of the profits are captured by Apple. This leaves Android smartphone vendors with a low share of market profit divided among the many of them.

Most of the market participants use traditional models, and pursue differentiation, cost leadership, or both strategies at once to some extent or another. Among the three leaders, Samsung is focused on differentiation, Huawei pursues a hybrid strategy, while Xiaomi uses an unusual strategy of shifting most of the profits towards the additional services sold to their customers (albeit, the hardware part per se, which includes selling smartphones, is also a hybrid of differentiation and cost leadership with a focus on the latter). It may be said that Samsung, as a large corporation, had had significant brand image potential even before entering the smartphone market, and its success may be largely attributed to that factor. Huawei, while not as well-known to the global market, has been able to grow itself within the smartphone market using a strategic combination of cost leadership and differentiation.
Notably, Xiaomi is also the youngest company of the three, founded in 2010. Apparently, it has been successful, having achieved one of the highest positions in the market within a decade. By shifting the strategic focus towards making profit in the service business and limiting the hardware net profit to a maximum of 5 per cent, Xiaomi has been able to offer their products at lower prices. As the cost savings have been mainly achieved from limiting the price premiums (as well as from optimizing sales channels), the quality of the products has not suffered, and thus the offerings have not been inherently inferior to the competition. Thereby, Xiaomi has been able to attract many smartphone users and capture a significant market share. This business model may be compared to models of such innovators as Facebook and Google, who offer their digital services to individual customers for free while making tremendous profits.

One recommendation for other market participants may therefore be to further analyse the example of Xiaomi and implement some parts of its business model in their own. While the success of the other two market leaders may provide valuable examples as well, it may be speculated that relying on the more traditional model of directly profiting from hardware sales would make it very difficult to achieve success in a very competitive environment. A focus on differentiation strategy is something that is usually easier for companies with an existing brand image, while the cost leadership in a market with low profitability would yield very low profit margins. Therefore, shifting the profits elsewhere, to some additional service or product sales, would allow to efficiently differentiate the products while maintain lower costs and prices, i.e. to combine differentiation and cost leadership with maximum efficiency.

It should also be noted that there are certain boundaries for strategic possibilities that depend on a firm’s size, investment capacity, access to resources. Normally, larger firms with bigger resource pools mainly pursue differentiation or cost leadership strategies, while smaller firms often only have a choice of targeting narrow markets with a focus strategy (Wright 1987). The primary reason for that is the requirement of the first two strategies for large investment requirements, capital-
intensive technologies, large production volumes, economies of scale and “incrementally increasing learning curve” (Hout et al. 1982; Allan & Hammond 1975; Abernathy & Wayne 1983; Boston Consulting Group 1976).

It may be therefore suggested that new market entrants with limited access to economies of scale, large production capacity and investments for capital-intensive technology pursue a focus strategy with a clearly defined narrow group of customers. By serving specific needs of specific groups more effectively, smaller firms may capture the interest of these groups without as much focus on costs as with the other strategies. These specific customers may overall be less-price sensitive and look for offerings that meet their requirements better.

For the larger firms, on the other hand, it may be suggested that they try to compete with the market leaders pursuing the differentiation, cost leadership or hybrid strategies. One very beneficial aspect of differentiation would be a strong brand image, which, if lacking, may also be sometimes purchased. However, with access to large amounts of investment resources it may be possible to develop competitive advantage points within any other differentiation or cost leadership dimensions, such as outstanding technological features, new and unusual design concepts, or lower prices. As suggested, the efficiency of these strategies may be maximizing by adopting a business model similar to that of Xiaomi, whereby the profit-seeking is shifted away from the hardware sales.
4 Conclusions

4.1.1 Findings

In this section, the findings of the research will be summarized and the research questions will be answered.

In the market analysis section, it was described that the smartphone market was valued at $714.96 billion in 2019 with projections to surpass $1350 billion by 2025. The market structure may be described as a differentiated oligopoly with significant competition and price pressure. Profitability, in general, is not high – most of the premium smartphone market is captured by Apple, while Android smartphone vendors mostly compete for consumers that are more price-sensitive. However, the market is expected to grow overall, which may relieve the price pressure to some extent.

The major market trends are an increasing Average Selling Price and growing mid-range and premium segments. According to Moore’s law, the costs of core components of smartphones continue to decline, which makes competitive smartphones more affordable. However, the average selling price continues to grow as the innovative technologies become more expensive.

The major technological developments are 5G networks, foldable devices, high refresh rates of screens and multiple camera setups with increasing sensor resolutions.

The strategies of the three leaders of the Android smartphone market reflect the market structure. All three market leaders are present in all price segments, but they pursue different strategies.

Samsung, largely relying on the strong brand, follows a clear differentiation strategy. It does not lower its price too much in any price category, looking for some price skimming. Despite weaker technological differentiation in the lower price segment, Samsung manages to achieve high sales volumes, with Galaxy A-smartphones leading the rankings of best-selling smartphones in early 2020.
Huawei’s strategy appears to be less defined than that of Samsung, being more of a hybrid of differentiation and cost leadership. While not being able to fully avoid competing on the price basis, it also offers strong and differentiated products, and is able to successfully compete and gain significant market share. However, Huawei is currently being challenged by its ban on the use of Google services, which may affect the company’s strategies in the future.

Xiaomi offers the most unique strategy out of the three leaders. Being a young company, Xiaomi was able to achieve fast growth through a hybrid of product differentiation and cost leadership. While this model does not bring significant profit solely through the hardware business (in fact, the target profit promise is below 5 per cent), Xiaomi aims to collect the profits mainly through an innovative service-based model, whereby smartphones are seen primarily as tools for selling internet services to users.

The general suggestions for other market participants or new entrants depend on the size and the resource pool of a firm. Overall, all participants are limited by the low profitability of the Android handset market and its intense competition. Smaller firms may find the focus strategy with narrow, specific target audiences to be the most viable option, as pursuing other strategies requires large investments. Bigger firms may be able to compete within the broad market using differentiation, cost leadership or a hybrid strategy, but successful operation and combating the intense competition would require very strong selling points. As the smartphone market is developing very quickly, and some innovations and trends are constantly changing the market, it may be suggested to invest into differentiation through one of these trends, such as development of foldable devices.

Another recommendation that may be given to other market participants is to further examine the business model of Xiaomi and implement some of its elements in their own models. Competing with the established industry giants with strong brand images is very difficult even for large firms, and even with proper differentiation the profit potential is limited due to the nature of the Android smartphone market. Cost leadership, while potentially achievable, is even less likely to bring high profits in the highly competitive Android handset market.
However, a business model that is able to utilize the hardware sales for achieving profit through additional services may be able to offer the most potential, as it would be the most efficient for combining differentiation and cost leadership. Traditionally, cost leadership and lower pricing would mean standardized, inferior products for the sake of cost reductions. However, setting an initial low profit target for hardware sales (as the profits are expected from additional sales) would allow to price the products at very low prices while offering high-quality products that may be just as well (or even better) differentiated that the competition. This, as seen from the example of Xiaomi, is achievable and may be a factor of success.

4.1.2 Self-Reflection

To evaluate the validity of my own findings, I would note that while I have tried to follow the standards of good academic practice, some of the conclusions I have made throughout the research may be affected by my own ideas and opinions.

For example, I could not say that the product analysis of the case companies has been performed as extensively as it should have been. To support the suggestions and conclusions in that research section, only a few examples of the smartphone models have been used, and the conclusions largely relied on my own knowledge of the market, branding and smartphone technology.

It is also important to note that the theoretical framework of the research does not encompass the entirety of the business models and strategies the case companies use. Analysing Porter’s Generic Strategies through products, branding and pricing only gives a general overview of the case companies’ operations while overlooking much of other strategy- and marketing related concepts.

My overall opinion on the research findings is that it may be, for the most part, only stating the evident facts and providing descriptions of the current situation of the smartphone market. The problem for making truly novel conclusions and suggestions on this stage of the research is the limited access to industry-related information (extensive industry reports are behind paywalls) and the limited time resource of me as a student. However, it is my hope that the findings may still be
useful to those interested in the smartphone market for one reason or another, be it investors, potential entrants, or researchers.
References


