

# **Transformation of the World Market for Smartphones in the Context of Implementation Attacking Strategies by Chinese Companies**

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**Abstract.** The article discusses the specifics of the development of the global smartphone market with consideration to the positioning of new players in terms of sales dynamics and market share of major manufacturers. The analysis of changes in terms of market conditions from the moment of its inception to the present is made. The analysis showed that the previous industry leaders – the Samsung and the Apple are beginning substantially to give up positions, while Chinese companies (for example, the Huawei and the Xiaomi) are gaining more attention and approval from users, and, as a result, are increasing their market share. The content of the strategies for launching these companies into the market putting emphasis on improvement the quality characteristics of the product and price decisions is considered, including both basing on the material of flagships, and models of the mid-budget category. The content of similar managerial decisions of the Huawei companies (the Honor sub-brand is covered) and the Xiaomi is noted, while differentiating their practical implementation in terms of technical solutions and their combinations. The technical provisions of mid-range smartphones are compared. Theoretical provisions are supported by factual material of the TIPA (Technical Image Press Association) company, including rating results DxOMARK TIPA (Technical Image Press Association).

## **1. Introduction**

The increased role of the information and communication components of society's life is interdependent by the intensification of the development of corresponding technologies; with their accessibility for ordinary consumers being a significant incentive for improvement. So quite young market of mobile phones and smartphones is characterized by high mobility of parameters related to a high rate of product updates by both giants (coryphaeus) and newcomers. The attacking nature of the strategies of the latter led to structural shifts in the product offer, a change in consumer preferences, etc., provokes the instability of the market environment, updating the issue of studying its dynamics and development prospects.

## **2. Rationale**

The issues of smartphone market research are considered in the works of foreign and domestic scientists [26, 27, 28, 29]. However, the high dynamism of the market's development, related to the positioning of new companies aimed at expanding market share on it, so it does not allow one to put an end to the ongoing re-

search, requiring a reinterpretation of new changes. The latter are related to the formation of competitive advantages of the product as far as a very wide range of characteristics, which creates in its turn a certain image of the manufacturer. Since competition on a growing market is fulfilled in a considerable variety of forms, interest to decisions of participating companies that cause structural changes (for example, according to the “market share” criterion) and doesn’t allow it to get a static property is permanent.

### 3. Research purpose and objectives

The purpose of this study is to research the transformation of the global smartphone market in terms of introducing new companies to it, forming their own competitive advantages. The goal setting determined the positioning and consistent solution of such tasks as: collecting and analyzing market dynamics for 2007-2018; determination of the content of decisions, as a result of which companies gained leading positions; comparison of product characteristics - both along individual areas and as far as the way they are combined.

### 4. Case studies

2007 is considered to be the turning point in the formation of consumer interest towards smartphones - the launch of the first Apple iPhone and the subsequent presentation of the Android operating system, which is widely used in almost all phones except from Apple and Nokia products [1]. The market volume was significantly inferior to the market of conventional mobile phones (almost 10 times) [2]. Initially the Nokia was the leader, producing almost half of smartphones (or about 38% of the total number of mobile phones), but literally a year later, the Apple showed an annual sales growth of 2.5 times. The distribution of the market is presented in table. 1 [3].

The change of leader took place in 2011, when Nokia yielded to the Samsung and the Apple company, moving to the third place. Being a serious player on the market presenting familiar mobile phones, the Samsung took the leading position in the third year after the appearance of smartphones on the market. One of the main reasons why the company managed to become a market leader is the widespread consumer confidence in the formed brand (see table 2) [4,5].

**Table 1.** The state of the smartphone market (2007-2008).

Company	2007		2008 г.	
	Sales volume, million pieces	Market share %	Sales volume, million pieces	Market share, %
Nokia	60,47	49,40	60,92	43,70
Research in motion	11,77	9,60	23,15	16,60
Sharp	6,89	5,60	5,23	3,80
HTC	3,72	3,00	5,90	4,20
Apple	3,30	2,70	11,42	8,20
Others	36,18	29,60	32,67	23,50
Total	122,32	100,00	139,29	100,00

**Table 2.** Smartphones market dynamics (2009-2011).

Company	Sales volume, million pieces			Market share, %		
	2009	2010	2011	2009	2010	2011
Nokia	67,67	100,30	77,3	39,00	33,15	15,7
Research in motion	34,53	48,80	51,	19,90	16,13	10,4
Apple	25,16	47,50	93,2	14,50	15,70	19,0
HTC	8,15	21,50	43,5	4,70	7,11	8,9
Samsung	5,55	23,00	94,0	3,20	7,60	19,1
Others	34,18	61,50	132,3	19,70	20,32	26,9
Total	173,50	302,60	491,4	100	100	100

In 2012 the Samsung gained more than 30% of the market, losing growth to some extent. The same year the first Chinese companies occurred on the market - Huawei and Lenovo which demonstrated quite high increase in sales: 68 and 92%, respectively (see table 3) [6].

**Table 3.** Smartphones market dynamics (2012-2013).

Company	Sales volume, million pieces		Market share, %	
	2012	2013	2012	2013
Samsung	219,7	313,9	30,3	31,3
Apple	135,9	153,4	18,7	15,3
Huawei	29,1	48,8	4,0	4,9
LG	26,3	47,7	3,6	4,8
Lenovo	23,7	45,5	3,3	4,5
Others	290,5	394,9	40,1	39,3
Total	725,3	1 004,2	100	100

During subsequent years the growth rates of leaders (Samsung and Apple) slowed down considerably, while Chinese companies came close to them. Samsung sales in 2015 for the first time showed a negative trend (-1.63%), remaining in 2016 (-3.25%). Apple showed better performance: the dynamics remained positive, although it slowed considerably in 2016 (3.75%). Immediately, behind the leaders there were 3 Chinese companies all in all: Lenovo, Huawei and Xiaomi. (see tab. 4) [7].

**Table 4.** Smartphone market dynamics (2014-2016).

Company	Sales million pieces			Market share, %		
	2014	2015	2016	2014	2015	2016
Samsung	325,90	310,16	320,59	27,80	24,80	22,20
Apple	192,26	234,71	226,22	16,40	17,50	16,80
Lenovo+Motorola	92,61	85,22	69,81	7,90	5,40	6,10
Huawei	72,68	129,93	108,59	6,20	8,40	9,30
Xiaomi	60,96	81,03	72,39	5,20	5,60	5,80
Others	427,89	310,16	495,10	36,50	38,30	39,80
Total	1172,30	1397,10	1292,70	100,00	100,00	100,00

In 2017–2018 sales of Samsung and Apple companies continued to show slowdown, accounting for -8.16% and -2.73% (change for 2017-2018), while Chinese companies Huawei and Xiaomi gained their momentum. If in 2016 the technological giant Apple overtook Huawei in sales by more than 2 times, then by 2018 this difference has decreased enormously. Despite the fact that Xiaomi is still considerably inferior even to its “elder brother” - Huawei, the growth rate is also quite high (+ 130.9% for 2016-2018) [14].

**Table 5.** Smartphones market dynamics (2017-2018).

Company	Sales million pieces		Market share, %	
	2017	2018	2017	2018
Samsung	321 263,3	295 043,7	20,9	19,0
Apple	214 924,4	209 048,4	14,0	13,4
Huawei	150 534,3	202 901,4	9,8	13,0
Xiaomi	88 926,8	122 387,0	5,8	7,9
OPPO	112 124,0	118 837,5	7,3	7,6
Others	648 762,7	607 049,0	42,2	39,0
Total	1 536 535,5	1 555 267,0	100,0	100,0

Here are some of the factors that ensured the competitive advantages of the "Chinese coalition." First of all, this is the improvement of product characteristics - not only technical, but also aesthetic, while maintaining a very affordable price level. For example, Huawei's Honor 10 smartphone can compete with Apple's flagship product at the end of 2017 - the iPhone 8 Plus. At more than twice the low price, the Honor 10 smartphone can compete as far as photography and system performance, but can even win in certain parameters (for example, greater autonomy of the smartphone due to a more capacious battery and better screen quality, providing a higher pixel density). Huawei also made a "bet" for design parameter, which subsequently received high approval from users and set a new trend [8, 9].

Thanks to the work on creating the flagship Huawei P series, the company successfully is developing the brand, first of all, as far as photo capabilities of smartphones, which are annually were recognized as the best in terms of mobile photography. Huawei P20 Pro series smartphones were recognized as the leader in the DxOMARK ranking, leaving the well-known brands Samsung, Apple and Google far behind [10]. This trend continued with the release of subsequent models - not so long ago, the released Huawei P30 Pro smartphone was again recognized as the best "camera phone", which took first place in the DxOMARK rating and overtook its predecessor [11]. TIPA (Technical Image Press Association) also recognized the Huawei P30 Pro as the best "camera phone" device for Huawei for the third year in a row, before that they had highlighted the P20 Pro and P10 Pro [23]. It should also be noted that for users on the Russian market, the countries of the former CIS and Europe, one of the important factors when choosing a smartphone is the NFC module, which allows you to make contactless payments. Unlike other Chinese companies, Huawei incorporates the module not only in flagship solutions, but also into cheaper smartphones. With rapid development, the company not only plans to overtake Apple in the smartphone market, but by 2020, according to CEO Richard Yu, will overtake the current Samsung leader [12]

Xiaomi adopted similar principles as the basis for creating products - the availability of advanced technologies and focus on customer requests, neglecting other quality characteristics [13]. Unlike Huawei (the highest level photo capabilities, the availability of the NFC module in low-cost models, a new design), Xiaomi has focused on improvement its own technical specifications (processor, memory, etc.). But following this strategy of low prices was retained. Although in terms of market share, the company is considerably behind other players. In 2018 the company showed a significant increase of +130.9% (from the level of 2016), moved ahead greatly and leaving behind other companies (7.9% and 3.6% respectively).

Let us compare the characteristics of smartphones of the mid-budget price category Samsung, Xiaomi and Huawei, which are currently popular [15-20]. Smartphones are comparatively similar in technical specifications, there is no evident leader, however, some points are worth to take into account. Presented smartphones have almost the same performance in synthetic tests, however, in real-time use, Snapdragon processors are often more stable than competitors. This is noted in most cases in modern games that are demanding technical capabilities of the smartphone. Although this indicator is not necessary for every user, nevertheless, Xiaomi Redmi Note 7 acquires although small but still an advantage over competitors. Xiaomi Redmi Note 7 model significantly outperforms its competitors in the number of megapixels of the main camera but this does not guarantee higher quality photos as competitors compensate for this superiority with other technical tricks. So the Samsung Galaxy A50 has an additional camera module, the Honor 8x smartphone has a special digital processor that helps to optimize photo processing algorithms [21]. All models under consideration have approximately equal battery capacities and equally high-quality screens. The only indicator of Xiaomi Redmi Note 7 that makes it to really lose among competitors is the absence of an NFC module (see table 5).

**Table 6.** Comparison of technical characteristics of mid-budget Samsung, Xiaomi and Huawei smartphones.

Characteristics	Xiaomi Redmi Note 7	Samsung Galaxy A50	Honor 8x
Screen	IPS LCD, 6,3"	Super AMOLED, 6,4"	LTPS IPS LCD, 6,5"
Pixel density (PPI)	409	403	397
Processor	Qualcomm Snapdragon 660 (4x2.2 GHz Kryo 260 4x1.8 GHz Kryo 260)	Samsung Exynos 7 Octa 9610 (4x2.3 GHz Cortex-A73, 4x1.7 GHz Cortex-A53)	HiSilicon Kirin 710 8-core (4x2.2 GHz Cortex-A73 + 4x1.7 GHz Cortex-A53)
Performance in synthetic test AnTuTu	around 145 000	around 143 000	around 140 000
Main camera	Double camera, 48+5 MP, f/1.8	Triple camera, 25+5+8 MP, f/1.7, f/2.2	Double camera, 20+2 MP, f/1.8
Frontal camera	13 MP	25 MP	16 MP
Module NFC	No	Yes	Yes
Battery capacity, mA*h	4 000	4 000	3 750
Official store price, rub.	15 990	19 900	17 990

Consumers are also paying attention to secondary characteristics - for example, at the presentation of Xiaomi Redmi Note 7, the company president showed a video demonstrating the strength of a smartphone with a walnut chopper. This situation caused great resonance and highlighted such a competitive advantage as increased strength (the product is not prone to scratches and open flame ) [22, 23].

A certain competitive advantage of the company is the lower price - according to 2017, Xiaomi received only \$ 2 of net profit from selling smartphones, while Huawei - \$ 15 from each sold phone, Samsung - \$ 31, Apple - \$ 151 [24]. This is possible due to the fact that the company decided to get profit from embedded services and software (games, e-books, financial products), it uses advertisings in embedded applications, receiving additional benefits [25, 30].

## 5. Conclusion

Chinese companies showed high dynamics in terms of smartphone sales, claiming the position of the main players on this market - Apple and Samsung; they chose the most efficient commitment to consumer requests as the basis of competition - both in terms of price and quality. Their competitive advantages which allowed not only to expand into a dynamically developing market with strong leaders, but also claim to be leaders, include: high-end cameras, bright and stylish design, the use of NFC technology not only in the flagship series but everywhere, affordable prices.

The actions of the youngest player - Xiaomi in many ways resemble Huawei's behavior - in terms of design, more attention to the photo capabilities of smartphones.

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