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huawei–LEICA ALLIANCE: REINVENTING SMARTPHONE PHOTOGRAPHY OR BUILDING BRAND IMAGE?[[1]](#endnote-1)

Wiboon Kittilaksanawong and Freddy Rocky Mason wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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In 2016, Chinese telecommunications (telecom) equipment company Huawei Technologies Co., Ltd. (Huawei) aspired to be the world’s top smartphone manufacturer. The company had identified German camera company Leica Camera AG (Leica) as a long-term partner to reinvent Huawei’s smartphone photography to beat an influx of domestic rivals and the market leaders, Apple Inc. (Apple) and Samsung Electronics Co., Ltd. (Samsung). Leica’s chief executive officer (CEO), Oliver Kaltner, said, “[This] technology partnership offers Leica an excellent opportunity to introduce its proven optical expertise into a new product segment, and to unlock exciting business areas in the field of mobile devices.”[[2]](#endnote-2) In fact, Huawei’s co-engineered flagship dual camera smartphone, the P9, contained a camera module that was made by a Chinese manufacturer, Sunny Optical Technology Co., Ltd. (Sunny Optical)—a camera manufacturer authorized by Leica.

Huawei was questioned as to whether their partnership with Leica was just a quick fix to beat Apple in the dual camera market. Some skeptics believed the alliance was just a marketing exercise for Huawei to rebound from the negative publicity it had received due to accusations of espionage in certain countries. To drive its ranking up to the 88th-best global brand by Interbrand in 2015, Huawei had also used Hollywood film stars Henry Cavill and Scarlett Johansson to promote its new products, and had partnered with Google Inc. (Google) and Swarovski AG (Swarovski).[[3]](#endnote-3)

As smartphone makers threatened Leica’s future by continually improving the quality and functions of phone cameras, had Leica found the perfect match? Was the long-term alliance the best solution for the competitive positions of both Huawei and Leica? With smartphone markets saturated in developed countries, Huawei needed to win over the world’s fast growing markets including India to become the number one smartphone manufacturer in the world. Was this product alliance the right solution for an emerging market?

HUAWEI: COMPANY HISTORY

Founded by Zhengfei Ren, an ex-military officer, in 1987, Huawei started with the equivalent of US$3,000[[4]](#endnote-4) as an original equipment manufacturer (OEM) selling telephone switches to corporate users. In the late 1980s, during a period of rapid economic reform, Shenzhen, the southeastern city in China where Huawei was registered, was the first to benefit from China’s “open-door” policy.[[5]](#endnote-5) With many Chinese telecom operators still importing equipment, Ren saw potential to manufacture and sell such equipment in China. He began developing switches through reverse engineering—rather than relying on joint ventures—to obtain foreign technologies. He reinvested most of the profits to fund research and development (R & D).[[6]](#endnote-6)

In 1996, the Chinese government restricted access to foreign companies, and adopted a policy to support Huawei’s plan to become a national champion. Despite slow growth and price wars between 1996 and 2002, Huawei pushed a “glocalization” strategy[[7]](#endnote-7) on a widespread scale to establish its influence as a major international player.[[8]](#endnote-8) By 2010, 80 per cent of the top 50 telecom companies worked with Huawei. In 2012, the company overtook Ericsson to become the world’s largest manufacturer of telecom equipment. By 2015, Huawei had revenues of over $60 billion and presence in over 170 countries.[[9]](#endnote-9) The areas that comprised this revenue were China (42 per cent); Europe, the Middle East, and Africa (32 per cent); Asia Pacific (13 per cent); the Americas (10 per cent); and other countries (3 per cent). The business groups that contributed to this revenue included carrier (59 per cent), consumer (32 per cent), enterprise (7 per cent), and others (2 per cent) (see Exhibit 1).

HUAWEI CONSUMER BUSINESS

Launched in 2003, Huawei’s consumer business had grown to cover smartphones, personal computers, tablets, and wearables; its products and services were used by one-third of the world’s population.[[10]](#endnote-10) In 2015, Huawei became the first Chinese company to sell more than 100 million mobile phones in one year, an increase of 44 per cent from the previous year. Departing from cheap, unbranded cellphones, Huawei offered its own brand directly to consumers, and this brand had risen to become the world’s third-best-selling smartphone. In 2015, the company sold 108 million smartphones (up from 68 million in 2014), yet still trailing Samsung at 324 million and Apple at 231 million units. Huawei’s revenue from smartphones also jumped 73 per cent to $20 billion, representing one-third of the company’s total revenue.[[11]](#endnote-11) Huawei had 16 R & D centres around the world. These centres employed 45 per cent of the company’s workforce.[[12]](#endnote-12) In 2016, the firm spent $9.2 billion on R & D—$1 billion more than Apple spent (see Exhibit 2).[[13]](#endnote-13)

THE SMARTPHONE MARKET IN CHINA

China was home to 675 million unique mobile users[[14]](#endnote-14) (comprising almost half of the country’s population).[[15]](#endnote-15) These users were responsible for 1.3 billion mobile subscriptions, with 29.6 per cent using fourth-generation (4G) technology. China’s smartphone market had been the biggest in the world since 2011, when it overtook that of the United States after growing at a double-digit rate. (In 1995, there were only 3.6 million mobile subscribers in China.)[[16]](#endnote-16) Increased sales coincided with a growing economy, where incomes rose, prices for chips and displays fell, and the government introduced a licensing system to encourage domestic firms.[[17]](#endnote-17)

Since 2005, the Chinese market had been growing in two directions: one catered to the emerging rural markets with low-priced phones, and the other was aimed at a growing middle class wanting fashionable brands with diverse features and functions. The dual-brand strategy had been key for Huawei’s success in China. The company’s premium brand sold primarily on offline channels, while its “Honor” brand was targeted for “e-commerce and the more price-sensitive market segment.”[[18]](#endnote-18) However, with the market saturating and competition entrenched, companies were looking at new ways to get users to upgrade, as well as seeking new markets to enter (see Exhibit 3).[[19]](#endnote-19) By 2015, China’s economy was stalling, and growth was at its slowest since 1990, at only 2 per cent.[[20]](#endnote-20)

GLOBAL MARKETS

Huawei had used emerging markets, such as the Middle East, Latin America, and Africa, to sell its cheaper smartphones.[[21]](#endnote-21) The company was second behind Samsung in Europe, where shipments rose 51 per cent in 2015.[[22]](#endnote-22) Huawei persuaded retailers to stock the phones by promising to pay for in-store promotions and offering sales training sessions. The dramatic increase was also the result of high-profile advertising campaigns, covering everything from trams in Rotterdam to buildings in Berlin. In addition, Huawei sponsored soccer clubs such as Associazione Calcio Milan (A. C. Milan) and Paris Saint-Germain Football Club, and European athletes like Lionel Messi and Robert Lewandowski.[[23]](#endnote-23) Much of the company’s success came from vertical integration and developing its own processors to cut costs and gain more control over the performance and timing of product upgrades, just as Apple and Samsung had done. This was not a strategy adopted by most competitors.[[24]](#endnote-24)

SMARTPHONE COMPETITION

Huawei’s Chinese competitors included Xiaomi Inc. (Xiaomi), Lenovo Group Ltd. (Lenovo), OPPO Electronics Corp. (OPPO), and Vivo Communication Technology Co., Ltd. (Vivo), while its global competitors included Apple and Samsung. Other notable companies, such as LG Corporation (LG), ZTE Corporation (ZTE), Sony Corporation (Sony), and Microsoft Corporation (Microsoft), were struggling to attract consumers at both ends of the spectrum.

In 2015, Xiaomi was the top-selling manufacturer in China, with a 15 per cent market share; it was also the fifth-largest smartphone maker. Five years after its launch in 2014, Xiaomi became the world’s most valuable start-up, with a valuation of $46 billion. The company’s competitive advantage was built on direct sales from its own website, social media, fan engagement, and weekly operating system updates. It sold high-end models comparable to major rivals (Apple and Samsung) at a 30 to 50 per cent discount, made possible by purchasing subsidized hardware from Foxconn and Inventec.[[25]](#endnote-25) Furthermore, Xiaomi released a new flagship phone every 18 months rather than every six months, giving it more flexibility with profits and the ability to sell software and accessories.[[26]](#endnote-26)

Lenovo was a Chinese multinational technology company that acquired IBM’s personal computer business in 2005. In 2014, the company purchased Motorola Mobility from Google in a cash-and-stock deal. Struggling with organizational changes, Lenovo shipped 74 million units in 2015, accounting for a 5.1 per cent global market share, down from 7.2 per cent in the previous year.[[27]](#endnote-27)

After success with MP3 devices and Blu-ray players, Chinese electronics company OPPO entered the smartphone market in 2011. In 2015, it became the leading 4G smartphone manufacturer in China, with an 8.1 per cent market share and a 3.8 per cent share globally.[[28]](#endnote-28) By working closely with users and actively responding to feedback to sell through offline channels, OPPO sold 50 million devices worldwide in 2015, demonstrating 67 per cent growth from the previous year.[[29]](#endnote-29)

Vivo was a Chinese multinational technology company that designed, developed, and manufactured smartphones, accessories, software, and online services. The company focused on providing a high-quality audio experience for users by utilizing high-fidelity chips. In 2015, Vivo secured an 8.1 per cent share in the Chinese market and a 4.3 per cent share globally, selling just over 38 million units. In the same year, Vivo became the official sponsor of the Indian Premier League, the highest-level professional cricket league in India, stealing the title sponsorship position from PepsiCo, Inc. (Pepsi).

Apple was the world’s largest information technology company and the second-largest mobile phone manufacturer. The company revolutionized the smartphone through the introduction of the iPhone in 2007, which sold over 231 million units worldwide in 2015. Apple also enjoyed a strong year in China in 2015: it held a 13.4 per cent market share, up from 8.8 per cent in 2014. However, the company posted the first quarterly revenue decline in 13 years in 2016. With Tim Cook replacing Steve Jobs as Apple’s CEO, there were concerns about the company’s future: would the iPhone continue to be successful, or would the rise of Chinese and new brands that were springing up in India see the company decline?[[30]](#endnote-30)

Samsung was a South Korean conglomerate with over 70 companies covering everything from electronics to life insurance. The company’s electronics business made chips, personal computers, televisions, and phones. Despite being a late entrant, Samsung became the volume leader in 2011, with its Android-based Galaxy handset. In 2015, Samsung sold 324.8 million shipments (see Exhibit 4), up only 2.1 per cent from 2014. This relatively low increase was due to pressure at the high end from Apple and at the low-to-midrange end from Chinese manufacturers.[[31]](#endnote-31) In China, Samsung had dropped out of the top five vendors, despite holding the top spot until 2014.[[32]](#endnote-32)

REPAIRING HUAWEI’S DAMAGED BRAND

In October 2012, the United States Congress released a report claiming there were potential national security risks associated with Huawei’s network products, and recommended American companies and the U.S. government avoid doing business with Huawei.[[33]](#endnote-33) Soon afterward, the Australian government excluded Huawei from bidding on government projects, and asked private companies to follow suit.[[34]](#endnote-34) Reeling from these accusations of espionage and needing to rebuild the brand, Huawei decided to sell less sensitive products, such as handsets, and in 2015, it partnered with Google to produce the flagship Android Nexus. Previous manufacturers HTC, Samsung, and LG had all benefited in the past from the “halo effect” of the Nexus brand.[[35]](#endnote-35) Huawei also partnered with Austrian luxury crystal company Swarovski in January 2016, releasing a premium smartwatch for women that retailed around $600.[[36]](#endnote-36)

INDIA: THE NEXT GROWTH MARKET

At the same time that Huawei was struggling to make an impact in the United States following the espionage accusations, its business was facing saturation in existing key markets. In North America, 65 per cent of consumers owned a smartphone; in Europe, that number was 74 per cent, while China had reached 72 per cent.[[37]](#endnote-37) Huawei had identified India as a priority market for future growth, with the country showing patterns and traits similar to China’s 10 years earlier. Huawei’s network business had been operating in India for more than 14 years, the company was working with all major local telecom operators, and about 95 per cent of its 6,000 employees in India were locally hired Indians.[[38]](#endnote-38) The company’s consumer business had entered India in 2010, and pushed its sub-brand smartphone Honor, retailing at around $150.[[39]](#endnote-39) Huawei was also restructuring its mobile business in India to remove hierarchical layers to achieve greater focus and faster decision-making. It wanted to use growth in India as the driver to be the number one smartphone manufacturer in the world.[[40]](#endnote-40)

India had already overtaken the United States as the second-largest and fastest-growing smartphone market in the world. It was estimated that by 2020, India would have almost 1 billion smartphone users.[[41]](#endnote-41) The country had a base of 1.02 billion mobile subscribers, and 20 per cent penetration. With smartphones overtaking feature phone sales, the situation offered a huge opportunity for growth. In India, 23 out of every 100 people had smartphones; this growth would be furthered by investment from companies such as Bharti Airtel Limited (Bharti), which provided better connectivity and faster data speeds through 4G networks. In 2015, smartphone sales grew 23.3 per cent to reach 100 million units, compared to 81.1 million in 2014.[[42]](#endnote-42) Online sales accounted for about 37.3 per cent of total smartphone sales, making distribution easier with higher profits.[[43]](#endnote-43) This opportunity caught the attention of Chinese manufacturers such as Xiaomi, Lenovo, OPPO, and Vivo, and they soon ventured into India. In 2015, there were 57 operators, compared to only 12 in 2013.[[44]](#endnote-44) In the same year, Chinese brands increased their market share to 22 per cent, compared to 15 per cent the year before.[[45]](#endnote-45)

However, India posed many challenges as well as potential opportunities. Companies had to develop an understanding of the unique sociopolitical, environmental, and institutional factors. These contextual factors had to be incorporated into companies’ market strategies and business models. In addition, the market was fragmented and congested with over 150 competing brands. Only Samsung and domestic supplier Micromax Informatics Limited (Micromax) had market shares of more than 10 per cent (see Exhibit 5). Apple was working on a strategy with the Indian government to bring in refurbished phones, suggesting that the company believed that its premium phone was the right choice to tap into the Indian market but at a much lower price point.[[46]](#endnote-46) In a country where nearly half of Indians had not heard of Apple, how could Huawei increase awareness of its own brand and play a dual-brand strategy game?[[47]](#endnote-47)

LEICA: Company HISTORY

With over 100 years of history in pioneering world-class lenses and rangefinder cameras, German brand Leica held an important position in the photography world. Its products had been used to capture some of the most iconic images. Leica cameras, recognizable by the “red dot” branding, represented German engineering at its best, which continued to attract new generations of consumers who aspired to achieve “the Leica look.”[[48]](#endnote-48) In 2015, Leica had $387 million in revenue.

Leica’s history could be traced back to the mid-19th century, when Oskar Barnack and Ernst Leitz II developed and produced the first small-format camera. Prior to this development, cameras had been large and fairly immobile, typically requiring a tripod mounting to support their weight. After a long delay due to World War One, the small-format camera was mass produced for consumers in 1924, revolutionizing the camera industry. Iconic images taken with a Leica included photographs from Mahatma Gandhi’s funeral in 1948, and the famously captured shot of the fleeing “Napalm girl” taken in Vietnam in 1972. By the 1960’s, Leica was a cultural icon and even second-hand/vintage models of its products sold for thousands of dollars.

Leica was also experienced in the field of microscopy, and therefore had a strong edge in glass expertise. The company developed some of the best lenses in the market. With a machine- and man-made mixture, lenses were checked by technicians more than 60 times throughout the manufacturing process. In an age of mass manufacturing, Leica lenses were made with over 30 production processes finished by hand, requiring highly trained technicians. As the company advertised, Leica lenses were “a synonym for quality, made in Germany.”[[49]](#endnote-49) Throughout the twentieth century, Leica went through a number of ownership transitions and in 1994, former chief financial officer Klaus-Dieter Hofmann was successful in leading a management buyout of the camera division, which was then named Leica Camera AG.[[50]](#endnote-50)

When digital photography started to gain popularity in the 1990s, Leica nearly went bankrupt with its attempt to join the digital age, lacking the resources to compete, having only an array of outdated technology (see Exhibit 6). Andreas Kaufmann, co-founder of the German Green Party and heir to a family fortune from papermaking, bought the fledgling remade company in 2004 to stave off its insolvency. By 2011, Leica was profitable through niche “retro” cameras and interchangeable lenses, which led to private equity firm Blackstone Group buying a 44 per cent stake for an undisclosed price. In 2012, Leica was delisted on the stock exchange as a 100 per cent privately owned company.

With the rise of improved camera technology in smartphones, and the less expensive but high-quality cameras available from Sony, Olympus, and Panasonic, Kaltner was hired as Leica’s CEO to help the firm pursue a digital transformation of strategic change, from a pure hardware company to a hardware, software, and services enterprise. In 2016, Kaltner stated:

The message we must convey to the market is that we, as the seemingly smallest of camera manufacturers, are committed to pursuing a digital transformation. We are dedicated to achieving this while retaining a good balance between a respectful regard for tradition and a focused move towards globalization and digitization. The company’s transformation from hardware only to a supplier of hardware, software, and services shows that we want to find new solutions without giving up our extensive expertise in engineering. It is this expertise that makes us interesting to global partners who are far bigger than us, but lack our know-how.[[51]](#endnote-51)

LEARNING FROM PAST FAILURE

The need for transformation was highlighted by the fall of the Eastman Kodak Company (Kodak), once one of the world’s five most valuable brands, with revenues of $16 billion in 1996.[[52]](#endnote-52) The company transformed photography from an activity dominated by professionals into a part of everyday life, giving consumers the ability to capture their own “Kodak moment.” Digital photography replaced film, and smartphones replaced cameras, and soon the old business model of camera and film companies was under threat. Kodak failed to diversify, hoping the new technology would fade away; instead, digital photography became the new norm, and Kodak declared bankruptcy.[[53]](#endnote-53)

Leica had so far survived the digital shift by carving out a niche market, using its red dot branding as a status symbol. However, the threat of improved technology made the company reconsider its options: should Leica improve its cameras to compete with smartphones, or should it diversify into new product markets and embrace uncertainty?[[54]](#endnote-54)

A LONG-TERM PARTNERSHIP

In February 2016, Huawei and Leica announced their long-term technology partnership to reinvent smartphone photography, which covered R & D, design, co-engineering, user experience, marketing, and retail distribution.[[55]](#endnote-55) With smartphones making an important contribution in the world of photography, this new trend was seen as an opportunity for Leica to target new groups and fields of applications. For Huawei, the partnership was intended to utilize the strength of Leica’s brand and German precision engineering to produce a smartphone that could rival Apple and Samsung in the premium smartphone segment. Huawei’s CEO explained:

We choose our partners carefully, and with this extraordinary collaboration we are offering our . . . consumers the best elements of two expert brands in harmony: combining innovation and design, enhancing the user experience, and continuing to inspire amazing advancement in human technology through exceptional premium imaging quality. Leica is a legend in the world of photography; we believe no other manufacturer has revolutionized the industry as much as [it has]. . . . Huawei [takes] the utmost pride in exceptional quality and Leica is in a class of its own in its sector.[[56]](#endnote-56)

Engineers from Huawei and Leica worked together for nearly a year to develop the flagship phone with a dual camera, beating Apple in releasing a multi-lens camera.[[57]](#endnote-57) The P9, released on April 29, 2016, worked with two 12-megapixel cameras that functioned by taking a photo from both cameras simultaneously and using software to combine them. One camera captured a normal colour image, while the second took a monochrome image that allowed for more focus on the lighting of a scene. The advantage was a better overall image with higher clarity and professional camera-like quality. The P9 retailed as a premium-end smartphone for around $700.

QUESTIONING THE PARTNERSHIP

When Huawei released the P9 and P9 Plus smartphones in April 2016, much of the public attention was on the incorporated Leica-branded dual-cameras. According to the Huawei–Leica alliance, these newly launched cameras were co-engineered between the two companies—the first collaboration between the two companies following their long-term partnership announced in February. From the very beginning, Leica had been deeply involved in the development of these devices. There had been significant technological collaboration between Huawei and Leica around many aspects of the camera, including optical design, imaging quality, image data processing, optimization, and the mechanical construction of the camera module to the graphic user interface. The devices met Leica’s highest imaging quality standards.[[58]](#endnote-58)

However, reports had been leaked to the public before the smartphone release, saying that Leica only oversaw the production without active involvement while a Chinese company, Sunny Optical, actually manufactured the camera module. Skeptical consumers were, therefore, not assured by the statements of quality subsequently made by the alliance. Consumers doubted how much input Leica had actually contributed to these camera models.[[59]](#endnote-59) In particular, these leaked reports confirmed that the German camera-maker had only certified the modules made by the Chinese OEM. Many critics saw the collaboration as nothing more than a “quick fix” to beat Apple to the dual camera market, and a marketing exercise to increase Huawei’s brand awareness.

LEARNING FROM SONY AND ZEISS

In 1995, Sony partnered with Carl Zeiss AG (Zeiss) to improve quality in the booming camcorder segment. Zeiss, like Leica, was a German company, with over 165 years of experience in optics and lens manufacturing. The partnership seemed ideal. Sony was a powerful name in consumer electronics, but was less known among professionals for optics and photography; Zeiss had an excellent reputation among professional photographers, but was virtually unknown in the consumer market.[[60]](#endnote-60) The two companies joined their core competencies: electronics from Sony and optics from Zeiss. Sony strengthened its own reputation among professional photographers while Zeiss gained access to the much broader market of ambitious amateur photographers and cinematographers. By 2015, more than 185 million Sony products had been sold under the partnership with the Zeiss brand.

Learning from this collaboration, Zeiss partnered with Nokia to release the first mobile phone with a two-megapixel camera in 2005. The partnership continued after Microsoft bought Nokia’s smartphone business, selling 130 million Nokia phones with Zeiss optics. Microsoft provided the specifications for upcoming smartphone cameras, and engineers from Zeiss and Microsoft then developed the appropriate lenses and camera modules, which were manufactured under Microsoft’s direction. Since 2007, Zeiss had also partnered with Logitech, which had sold 7 million webcams since 2007.[[61]](#endnote-61)

THE POWER OF THE “RED DOT”

Leica had also ventured into outsourcing and manufacturing partnerships over the years. In 1998, Leica introduced the Digilux, a $500 entry in the point-and-shoot digital camera market, manufactured by Fujifilm. In 2004, Leica partnered with Panasonic to make additional Digilux models with Leica-designed lenses and Panasonic bodies and electronics. Sold by Panasonic under the name “Lumix,” the Leica versions of these products sold for up to 45 per cent more when they carried the red Leica logo (the red dot) and special packaging, even though they were essentially the same camera as those without the red dot.[[62]](#endnote-62)

DECLINE OF THE CAMERA INDUSTRY AND THE RISE OF THE SMARTPHONES

With their increased convenience and affordability, smartphones had challenged Leica’s ability to succeed in the camera market. Smartphones were packed with advanced sensors and lenses that produced high-quality images at a very affordable price; these features resulted in a significant decline in the demand for cameras (see Exhibit 7).[[63]](#endnote-63) Widespread use of social media led to a growing trend for sharing photos on applications (e.g., Snapchat, Facebook, and Instagram) immediately after taking them, so the camera industry was fighting a losing battle.[[64]](#endnote-64) The rising threat from smartphones and the subsequent reduction in expected sales of digital cameras created uncertainties for Leica. The company needed to find a new growth market to ensure its survival.

BEATING APPLE TO THE RACE?

In 2015, Apple purchased Israeli camera technology company LinX Computational Imaging Ltd (LinX) for a deal valued at $20 million. LinX made multi-lens cameras for smartphones, tablets, and ultra-books, and these cameras could capture images that rivalled high-end single-lens reflex cameras. LinX’s cameras allowed photographers to take high-quality photos in low-light settings, eliminating image blur from pictures taken indoors. The cameras could also capture two- and three-dimensional images.[[65]](#endnote-65) Apple released its new products every two years. The upcoming Apple iPhone 7 was set to be released in September 2016, and it had long been suggested that the new features would include a dual camera with optimal image stabilization and zoom, achieved through the acquisition of LinX.[[66]](#endnote-66)

Given an influx of domestic Chinese rivals and the market leaders, Apple and Samsung, in the highly competitive smartphone market, was the long-term partnership with Leica to access its advanced photography the right strategy for Huawei? Or should Huawei have reinvented smartphone photography in-house (like Samsung) after already spending so much on research and development (R & D)? Would Huawei be able to continue its dual-brand strategy in emerging markets like India? How could the two companies work together in the future to produce more synergies? Would the power of the red dot allow them to overtake major competitors Apple and Samsung?

EXHIBIT 1: HUAWEI GROUP FINANCIAL INFORMATION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 2011 | 2012 | 2013 | 2014 | 2015 | |
|  | **CNY Million** | | | | **US$**  **Million** | **CNY Million** |
| Revenue | 203,929 | 220,198 | 239,025 | 288,197 | 60,839 | 395,009 |
| Operating profit | 18,796 | 20,658 | 29,128 | 34,205 | 7,052 | 45,786 |
| Operating margin | 9.2% | 9.4% | 12.2% | 11.9% | 11.6% | 11.6% |
| Net profit | 11,655 | 15,624 | 21,003 | 27,866 | 5,685 | 36,910 |
| Cash flow from  operating activities | 17,826 | 24,624 | 22,554 | 41,755 | 7,595 | 49,315 |
| Cash and short-term investments | 62,342 | 71,649 | 81,944 | 106,036 | 19,284 | 125,208 |
| Working capital | 56,996 | 63,837 | 75,180 | 78,566 | 13,711 | 89,019 |
| Total assets | 193,849 | 223,348 | 244,091 | 309,773 | 57,319 | 372,155 |
| Total borrowings | 20,327 | 20,754 | 23,033 | 28,108 | 4,464 | 28,986 |
| Owner's equity | 66,228 | 75,024 | 86,266 | 99,985 | 18,339 | 119,069 |
| Liability ratio | 65.8% | 66.4% | 64.7% | 67.7% | 68.0% | 68.0% |

Source: Created by the case authors based on Huawei, *2015 Annual Report*, September 14, 2015, accessed July 12, 2016, www.huawei.com/en/about-huawei/annual-report/2015.

EXHIBIT 2: HUAWEI, SAMSUNG, and apple: Research and Development SPENDING, AND AVERAGE SELLING PRICE FOR A SMARTPHONE

Research and Development Spending

Average Selling Price of a Smartphone

Source: Created by the case authors based on Juro Osawa and Sam Schechner, “Huawei Makes Push to Get Ahead of Apple, Samsung in Smartphone Market,” *The Wall Street Journal*, April 5, 2016, accessed July 3, 2016, www.wsj.com/articles/huawei-makes-push-to-get-ahead-of-apple-samsung-in-smartphone-market-1459878744.

EXHIBIT 3: TOP FIVE SMARTPHONE VENDORS IN CHINA: SHIPMENTS, MARKET SHARE, AND YEAR-OVER-YEAR GROWTH (shipped UNITS IN MILLIONS)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vendor | 2014  Units Shipped | 2014  Market  Share (%) | 2015  Units Shipped | 2015  Market  Share (%) | YoY Growth (%) |
| 1. Xiaomi | 52.7 | 12.4 | 64.9 | 15.0 | 23.2 |
| 2. Huawei | 41.1 | 9.7 | 62.9 | 14.5 | 53.0 |
| 3. Apple | 37.4 | 8.8 | 58.4 | 13.4 | 56.0 |
| 4. OPPO | 25.9 | 6.1 | 35.3 | 8.1 | 36.2 |
| 5. Vivo | 27.9 | 6.6 | 35.1 | 8.1 | 26.1 |
| Others | 238.3 | 56.4 | 177.5 | 40.9 | −25.5 |
| Total | 423.3 | 100.0 | 434.1 | 100.0 | 2.5 |

Note: YoY = year over year

Source: Created by the case authors based on Shari Jane Jansen, “China Smartphone Market Sees Its Highest Shipment Ever of 117.3 Million in 2015Q4,” IDC, February 14, 2016, accessed July 21, 2016, www.idc.com/getdoc.jsp?containerId=prAP41028416.

EXHIBIT 4: INDIAN SMARTPHONE MARKET SHARE (%)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2013** | | | | **2014** | | | | **2015** | | | **2016** | | |
|  | **Q1** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** | **Q4** | **Q2** | **Q3** | **Q4** | **Q1** | **Q2** | **Q3** |
| Samsung | 26 | 33 | 33 | 19 | 35 | 29 | 24 | 22 | 23 | 24 | 27 | 27 | 25 | 23 |
| Micromax | 22 | 19 | 17 | 13 | 15 | 18 | 20 | 18 | 17 | 17 | 14 | 13 | 13 | 8 |
| Karbonn | 13 | 11 | 11 | 10 | 10 | 8 | 8 |  |  |  |  |  |  |  |
| Nokia | 5 | 6 | 5 | 12 | 4 |  |  |  |  |  |  |  |  |  |
| Sony | 5 | 6 |  |  |  |  |  |  |  |  |  |  |  |  |
| Lava |  |  |  | 6 | 6 | 6 | 8 | 7 | 7 | 5 | 7 |  |  |  |
| Motorola |  |  |  |  |  | 5 | 5 |  |  |  |  |  |  |  |
| Intex |  |  |  |  |  |  |  | 8 | 11 | 11 | 9 | 9 | 7 | 7 |
| Xiaomi |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |
| Lenovo |  |  |  |  |  |  |  |  | 6 | 10 | 12 | 8 | 8 | 10 |
| Reliance Jio |  |  |  |  |  |  |  |  |  |  |  | 7 | 7 | 7 |
| Others | 29 | 26 | 34 | 40 | 30 | 34 | 36 | 41 | 37 | 34 | 31 | 36 | 40 | 46 |

Note: Q = quarter

Source: Created by the case authors based on “Smartphone Market Share Held by Vendors in India from 1st Quarter 2013 to 3rd Quarter of 2016,” Statista, May 30, 2016, accessed July 30, 2016, www.statista.com/statistics/269487/top-5-india-smartphone-vendors.

EXHIBIT 5: TOP FIVE SMARTPHONE VENDORS WORLDWIDE: SHIPMENT VOLUMES, MARKET SHARE, AND YEAR-OVER-YEAR GROWTH (shipment UNITS IN MILLIONS)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vendor | 2014 Units Shipped | 2014 Market Share (%) | 2015 Units Shipped | 2015  Market Share (%) | YoY Growth (%) |
| 1. Samsung | 318.2 | 24.4 | 324.8 | 22.7 | 2.1 |
| 2. Apple | 192.7 | 14.8 | 231.5 | 16.2 | 20.2 |
| 3. Huawei | 73.8 | 5.7 | 106.6 | 7.4 | 44.3 |
| 4. Lenovo | 59.4 | 4.6 | 74.0 | 5.2 | 24.5 |
| 5. Xiaomi | 57.7 | 4.4 | 70.8 | 4.9 | 22.8 |
| Others | 599.9 | 46.1 | 652.2 | 43.6 | 4.2 |
| Total | **1,301.7** | **100.0** | **1,432.9** | **100.0** | **10.1** |
| Lenovo + Motorola | 93.7 | 7.2 | 73.9 | 5.2 | −21.1 |

Note: YoY = year over year

Source: Created by the case authors based on Kathy Nagamine, “Apple, Huawei, and Xiaomi Finish 2015 with Above Average Year-Over-Year Growth, as Worldwide Smartphone Shipments Surpass 1.4 Billion for the Year,” IDC, January 27, 2016, accessed July 21, 2016, www.idc.com/getdoc.jsp?containerId=prUS40980416.

EXHIBIT 6: LEICA FINANCIALS (1994–2011)

Note: € = euros; €1 = US$0.92 on January 1, 2016.

Source: Created by the case authors based on Aaron Brethorst, “How Leica Lost its Way,” Ishootfilm, October 29, 2014, accessed July 30, 2016, www.ishootfilm.org/blog/2014/11/17/13-how-leica-lost-its-way.

EXHIBIT 7: SALES of cameras and interchangeable lenses, 1965–2015 (In millions)

Cameras

Interchangeable Lenses

Source: Thomas Stirr, “A Few Thoughts About the Camera Market,” *Photography Life*, April 5, 2016, accessed July 25, 2016, https://photographylife.com/a-few-thoughts-about-the-camera-market.

endnotes

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