

# The iPhone Strategy

## How Apple Built a \$200B Product – Then Nearly Lost China – Then Won It Back

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### 1 The Insight, The Opportunity, The Strategy:

#### 1.1 The Insight

The insight came from the first iPod, launched in 2001. It was the successful miniaturization of the music player's two key electronic components normally found in computers, the 1.8 inch hard drive and the logic board containing 2 chips (CPU and Audio), which convinced Apple that it could pack not just 2 but all of a computer's components into a palm-sized device.

**The iPhone Chips** On this insight, Apple went on to make the iPhone, introducing it in 2007. A teardown of the first generation iPhone will show that it contained at least 6 chips soldered on the logic board: a wireless network, CPU, GPU, audio, touch sensor and display chip.

**The iPhone Operating System** With exceptional foresight, Apple also made sure that the iPhone's operating system would carry all communication protocols and media formats, which were in the process of becoming fully digitized.

**The iPhone Device** The iPhone had to have 2 unique product features: i) it would have a touch screen, ii) it would be a 2-in-1 app-based hand-held device.

**The iPhone Retail Channels** Apple knew it had to sell the device and the apps apart, through separate distribution channels. For the iPhone, it would go through the traditional retail channels beginning with the mobilephone carriers but also, along with its other products, at its own Apple Stores and on its apple.com website. For its apps, it would sell them on a dedicated online store, the App Store. As for the developer community, an extremely important source of revenue, it would develop a dedicated platform, developer.apple.com.

#### 1.2 The Opportunity and The Strategy

To turn that insight into a viable business opportunity, Apple had to develop its business strategy, that is both its [marketing strategy around the 4 Ps](#) and its [competitive strategy around the 5-Forces](#).

#### 1.3 Marketing Strategy

Developing a marketing strategy entails the following:

- . **Customers** finding the right product/market/channel fit to best serve the largest possible number of customers
- . **People** building a customer-focused organization
- . **Money** securing the financing to provide the staying power to execute the action plan

**The Product/Market/Channel Fit** in Apple's case, it was lucky not only to have in its highly profitable iTunes and iPod products the cash cow for the financing but also to have in both products' large

customer base a readily receptive market for the iPhone. In AT&T, the largest wireless distributor in the US at the time, it found the ideal channel partner.

The following tool and metric to measure a marketing strategy's effectiveness are used:

**Tool – the 4 Ps and Metric - Product Lifecycle** A very helpful metric for developing a firm's marketing and action plans is the Product Life Cycle (PLC). In Apple's case, we can say the following:

. **Growth Stage** This is the early, introductory stage of the PLC when the market gains traction, as customers become aware and begin to adopt the product. The iPhone entered the smartphone market with its iPhone at that high growth stage at the right time, in June 2007, when there was a shift to a younger demographic group of new customers. At the same time, existing customers, who had been using Blackberry at work over the previous 6 years, immediately perceived the iPhone as the far superior product. But only until 4G came into full bloom beginning 2011, did customers make the switch, a massive one, to the iPhone.

. **Maturity Stage** At this stage, existing customers making up the bulk of the market, await a superior, more innovative replacement product to what they've been served. This was the case of Blackberry between June 2007 and Dec 2010, when it stubbornly refused to take on the iPhone with a better product. We clearly see that at maturity, there must be continuous product replacement by the market leader. Apple understood this, Blackberry didn't.

. **Decline Stage** At this stage, between Jan 2011 and Sep 2013, both new customers, which now made up most of the market and existing customers, formerly Blackberry's, had switched to the iPhone.

As we see here, in the real world, all 3 stages of the PLC tend to overlap.

#### 1.4 Competitive Strategy

We use the following tools and metrics to measure a competitive strategy's effectiveness:

**Tool – the 5-Forces** and **Metric – Market Share Growth** 2 metrics which can greatly help a firm choose the right generic competitive strategy are the following. Applying it to Apple, we have the following:

. **Market Share Growth** A firm either gains, maintains, or loses market share:

*A firm gains market share* when its growth rate is greater than that of the market. This reflects superior performance. This was the case of the iPhone at first between Jan 2007 and Dec 2010, when it attracted most of the new customers entering the market and then between Jan 2011 and Sep 2013, when it also drained most of the market's existing customers, mainly Blackberry's customers who switched over in droves to what they perceived as a far superior product that was the iPhone.

*A firm maintains market share* when its growth rate is the same as that of the market. This reflects average performance. This was the case of Blackberry between Jan 2007 and Dec 2010, when it still had to itself most of the smartphone market, which it created with the launch of its Pearl 8100 back in 2001. It was never really challenged for 6 years until Apple came on board in June 2007 with the iPhone. Blackberry's mistake was to look at the iPhone's relative market share, which being more recent, was bound to be much smaller than Blackberry's. What it should have looked at was the iPhone's relative market share growth, which increased exponentially over time. The key metric is the market for new customers or first-time buyers, where Apple had the biggest market share.

*A firm loses market share* when its growth rate is lower than that of the market. This reflects poor performance. This was the case of Blackberry between Jan 2011 and Sep 2013, when its customers switched over in droves to the iPhone. The 2010 iPhone 4 was now equipped with the latest technologies which Blackberry could have easily integrated into its own products (Siri, Touch ID, Retina Display, billion transistor CPU chip, ...) but stubbornly refused to.

To paraphrase Peter Drucker on innovation, Apple worked on tomorrow's products, Blackberry worked on yesterday's products.

**Tool - Drucker's Business Diagnosis and Metric - Profit Contribution (market share \* profit margin)** A forerunner of Activity-Based Costing, profit contribution assumes that to be successful, a product must achieve both high market share and high operating margin. To avoid margin distortions, costs must be regrouped by activities as measured by time spent. It is activities, not sales volume, which "drive" costs (it would take the same 5 minutes to fill a \$5M sales order as it would to fill a \$500 order). In Apple's case, we have the following:

*A high profit contribution* reflects quantitatively both high market share and high product margin, and qualitatively high market adoption and customer trust. Only through innovation can you achieve both goals. Apple has done it with its iPhone.

*An average profit contribution* reflects a lack of innovation on the part of the market leader. Blackberry, we saw, was in this position between 2007 and 2010.

*A low profit contribution* reflects low market share and low % margin. This was the case of Blackberry between 2011 and 2013, before its bankruptcy.

## 2 The Partnerships

### 2.1 Channel Partnerships

*Learning from your mistakes* In the span of a few years in the early 1980s, in spite of having a (slightly) superior product in its Apple II PC to the IBM PC, Apple lost out to IBM, at a time when the PC Market was growing at 40% a year. It made the 3 following mistakes:

. **Price:** the first mistake Apple made was to starve the very popular Apple II and sell instead a succession of new products (Apple III, Lisa, Macintosh), which, although innovative, turned out to be so costly they had to be priced at 5 times the acceptable market price.

. **Product:** its strength being in hardware, its second mistake was to stubbornly refuse to partner with Adobe in user software where it was weak. Without the right software, Jobs' "insanely great" products were worthless. IBM slipped right in, by coming up with the IBM PC, a product which had both the right hardware, the right user software at the right price. The IBM PC could also run on all PC operating system software, including Apple's. IBM took over the market. Apple, once the leader, was sidelined. Jobs was fired.

. **Channel:** the third mistake was that Jobs overlooked the real customers, the channel partners. Distributors had to drop Apple and turn to a product their customers, the end-users, wanted, the IBM PC.

In 2004, a major distributor, Cingular (later acquired by AT&T), impressed by the success of the iPod, came knocking to ask Apple to make what was to become the iPhone. Jobs II finally got it right. He learned from his mistake.

**The Lesson** Always listen to your channel partners who know better than anyone your customers.

## 2.2 Technology Partnerships

**Learning from those who know** Unbelievable as this may sound, Apple, a PC maker, did not know how to make mobilephones. This explains why, at AT&T's prodding, it accepted to team up with Motorola to make a cellphone, the Rokr, with an iPod built in. Forged too hastily, the alliance with Motorola broke up shortly thereafter, not without Apple acquiring in the meantime the know-how to design and manufacture a mobilephone, integrating its capabilities into its iPhone. Porter was right: doing better is not enough, doing differently is the key to success.

## 2.3 Industry Partnerships

**Industry Standards to reduce costs** Apple chose to defer to the best industry standards to achieve a level playing field in both performance and cost for its products.

It was only by building on this very solid base, that it was able to develop its differentiation strategy with a distinct market offering at the higher-end of the market, leveraging its uncommon excellence in product development, then marketing and delivering it to a mass market.

**Firm Innovation to add value** Most technologies, such as voice recognition (VR) and facial recognition (FR), are technical inventions awaiting decade-long industry standardization. Integrating the technologies as a first step, most products are business innovations, using not just one of the four Ps (product) but all four (product, price, place and promotion) to innovate across the entire product-market-channel value chain.

# 3 The Financing

Thanks to the success of the iPod, the iTunes store and its Macs, Apple had the **cash cow** it needed to finance between 2004 and 2007 the development of the iPhone, which by 2011, 4 years after its introduction, accounted for half of Apple's revenue.

# 4 The Management Team

## 4.1 The CEO

Steve Jobs became a much more mature and well-rounded businessman by the time he returned to Apple in 1997, considerably expanding his skills in product development to marketing and distribution, honed at Pixar, his previous firm (it didn't hurt either to have a wife who had a perfect business pedigree).

A proof of this change was the very bold decision he took to adopt what were the PC industry's de facto standards, by equipping his Mac PCs with Intel chips and by making them Windows-compatible, to potentially reach out to the hundreds of millions of **non-customers** he stubbornly shunned 12 years before during his first stint at Apple.

He also became a much better manager of people, surrounding himself with a very diverse group of young and talented functional executives, without whom Apple's complete transformation from PC maker to the digital company it is today may perhaps never have materialized.

#### 4.2 The Management Team

Steve Jobs built up a formidable management team, not only on the technical side but also on the business side, in 6 key areas, as follows:

The **Sales function** was substantially strengthened under Jobs' de facto COO, Tim Cook, who oversaw education sales, channel sales, iPhone sales, and the online stores, all of which represented one and the same market offering.

The **Operations and Fulfilment function** was headed by a young Jeff Williams.

The **Marketing function** was put under Phil Schiller.

The **Internet Services business** (the iTunes and App store) was put under Eddy Cue.

The **Apple Store** was run by Ron Johnson.

The **Finance function** was managed by Peter Oppenheimer.

Jobs and Cook applied the Jack Welch rule whereby you must not only ensure stability and continuity within your top management ranks but also personally look after the **500 key people** who help you run the company.

#### 4.3 The All-Important Sales Function

In 2014, Apple introduced a new iPhone model equipped with a 2B transistor-strong chip, the A8, pricing it at \$600 on average, 3 times more than the level of the last 6 years but in line with what its closest competitors charged and with what its targeted customers were willing to pay for.

Because of the risk of customer rejection of the new iPhone's price hike, it developed a new 3-pronged strategy:

. To maintain its lead over its competitors, it would increase the transistor count of its chips by a billion transistors every year (the latest A19 chip on its iPhone 17 Pro has 19B transistors).

. To increase unit sales, it would execute a much more aggressive **sales push strategy** in its then 400 Apple stores, with the objective of generating more purchases from its 350 million annual store visitors. Today, in 2025, Apple has 500 million visitors visiting annually its 500 Apple stores.

. To not lose real demand at the lower **price points**, Apple continues to sell older iPhones, going as far back as the 2014 iPhone 6 model, and for as long as they'd still meet its very high network (at least 4G), AI (at least Touch ID), and chip (at least A8) performance standards while still generating sufficient sales volume to realize **economies of scale** on the older models and **economies of scope** on the newer models.

#### 4.4 The Sales Objective

Apple revamped its entire product and service offering end 2020:

. **Products** End 2020, it introduced an entirely revamped line of its devices, enhanced by the latest AR/VR and 5G technologies (the iPhone 12, iPad Air, Apple Watch 6, Mac M1).

. **Services** Apple reported \$109B of services revenue in fiscal year 2025, representing a 5-fold increase compared to 2015, when it was first reported in its SEC filings. According to an estimate put together by ChatGPT from various sources, we have the following 2025 revenue breakdown by service line:

. The App Store \$32B

. Google Licensing \$18B

(annual payment by Google to use its search engine by default on Apple's Safari browser)

. Streaming \$14B

. iCloud \$12B

. Apple Care \$10B

. Payments \$8B

(mainly from Apple Card credit loans of \$80B to \$100B made to its 12M cardholders)

. Advertising \$4B (ad placement on the App Store and Apple Maps)

. Other Services \$2B (fitness, ...)

Thanks to the iPhone, Apple has had a formidable run of nearly 20 years. But today, we can say that the iPhone era has come to an end and that the AI era has begun. Using the 4 Ps and the 5-Forces, Apple must be in the process of developing and executing an entirely new strategy, possibly around the following AI products:

. AI iPhone with Apple Intelligence as the new user interface

. AI browser to replace Safari (open to all AI chatbots)

. AI Store to replace the App Store

. AI developer platform to replace its developer.apple.com platform (see point 10 below)

## 5 Product Offering

Apple has always stuck to what it does best. It has always been first and foremost a device maker. Its **strength** has always been in its unique ability to combine technical prowess and beautiful design, the iPod, developed in barely 9 months, being a prime example.

Even the launch in 2001 of both an online channel, the iTunes Store (9 months before the iPod was launched) and a retail channel, the Apple Stores, were primarily aimed at selling more of its Mac PCs.

With the back-to-back launch in 2007 and 2008 of the iPhone and the App Store, Apple still maintained a **first-mover advantage**, simply because it was the only one among its peers to offer what its customers wanted, that is not only a mobile device to play their music and run their apps on but also a channel to purchase the apps online.

Like its peers, Apple always knew what customers wanted. Unlike them, thanks to its unique strength in product development (of both products and services), it was always able to come up with **products which exceeded its customers' expectations**. To this end, witness also the speed with which it has brilliantly integrated the latest technologies into its products (AI, M chips, AR/VR, ...), ahead of its competitors.

## 5.1 iPhone

At the outset, Apple knew that it could make a high-end multi-purpose smartphone which would combine all in one

- . a [music player](#) with the iPod
- . a [PC](#) with a Wi-fi 4G connection and a Unix operating system
- . a [mobile phone](#)

To command [premium pricing](#), it would add value that would be perceived as substantial by the customer by upgrading the iPhone with the latest technologies. The upgrades would be introduced at breakneck speed, every year. Its iOS 16 iOS is in its 16th version and its 2022 iPhone 14 model runs on an 15B transistor chip that has 15 times the transistor count of the A7 chip launched in 2013. In 2025, the top line iPhone 17 Pro has 19 billion transistors.

[2025 Update](#) iPhone sales revenue topped \$209B in 2025, from \$201B in both 2023 and 2024.

## 5.2 Macs and iPads

After seeing annual sales stagnate at \$25B 5 years running until 2019, Mac sales finally took off, reaching \$40B of sales in 2022. This was due in large part to the new Mx series chips the Macs were equipped with. Likewise for iPads, with revenue reaching \$30B in 2022.

[2025 Update](#) Mac sales increased to \$34B in FY 2025 from \$30B in 2024 and \$29B in 2023, with iPad sales stable at \$27B/\$28B over the last 3 years. However, customers apparently give greater value to what's outside than what's inside the products. China's foldable devices, stolen from Samsung, are now all the rage.

## 5.3 Wearables, Home, Accessories

The explosive growth of a revamped Apple Watch and AirPods in 2019 will persist until 2022. The Apple Watch is expected to increase from 75 million units sold today to 115 million by 2022. The AirPods are forecast to increase from 33 million units sold to 158 million. In FY 2022, the category's sales more than doubled to \$41B from \$17B in 2018, peaked at \$40B in 2023,

[2025 Update](#) Consolidated sales of all 3 product families have slightly decreased to \$36B in 2025 from \$37B in 2024 and \$40B in 2023.

## 5.4 Internet of Things

In April 2021, Apple launched its FMCA (Find My Certification Assistant) app, licensing its Find My network technology to 3rd-Party companies. The app allows the latter to create accessories that communicate with Apple devices, using its MFI (Made For iPhone/iPad/iPod) technology.

## 5.5 2025 Update

Always a bit of a slow starter (it took Apple 4 years to develop the iPhone, a product which luckily was much better than that of the market leader, Blackberry), Apple is once more trailing a bit behind, in both software and hardware. In software, its AI user software, [Apple Intelligence](#), is still a work in progress. In hardware, [Huawei's](#) foldable devices using its own operating system and chips, is making a killing in China, eating into Apple's own market share.

## 6 Service Offering

### 6.1 The iPhone Customer Base

With more than a billion iPhone users who must go on the App Store to buy 3rd-party apps, Apple didn't have to build up from scratch a base of new customers in the streaming market.

Apple was part of the multi-billion user club, the MSOs (telcos, TV networks) and the FAANGs (Facebook, Amazon, .) through whom upstarts like Netflix and Spotify had to go to sell their streaming services. It's only when these upstarts reach a critical mass audience of about 200M subscribers that they can afford to reverse the bargaining power in their favor.

### 6.2 Threat as Opportunity

To reverse a decline in sales on its App Store following the negative publicity it received following the Epic lawsuits, Apple came up with an offensive strategy and a defensive strategy:

**Offensive Strategy** in Streaming It had to accelerate the build-up of its streaming business along the 3 following objectives:

- . The me-too streaming products had to reflect Apple's high-end positioning (Apple TV+)
- . Subscriptions had to be quite cheap (\$6.99 a month for Apple TV+)
- . Viewership must reach at least 200M (Netflix has 230M).

This is why Tim Cook was willing to pay top dollar to buy himself into Sports Streaming, acquiring the rights to air Major League Baseball and Major League Soccer on Apple TV+. Other deals are in the works.

**Defensive Strategy** for the App Store Apple dragged out of his retirement Phil Schiller to help it reverse the erosion in revenue on the App Store. Schiller has done just that. He has cut on a case-by-case basis the commission rate from 30% to 15% on the most exposed apps (Epic's) and aggressively developed Apple's Apple Ad business on the App Store, with a further extension to Apple Maps.

**Summing Up** as I mentioned earlier in point 4, Services revenue was at \$109B in FY 2025 versus \$85B in 2024 and \$74B in 2023. One of the main sources of the double-digit growth in services comes from its Apple TV+ business. Apple's gain in services of \$11.3B in operating income dwarfs the very small gain of \$3.3B in devices in FY 2025.

### 6.3 The Untapped Market Strategy

Apple's streaming strategy is a typical case of cleverly moving into an untapped yet very sizable market which incumbents, out of hubris, tend to almost always overlook. That market is the Sports Streaming market as opposed to the overly crowded Entertainment Streaming market (just as Netflix saw the potential of the Entertainment Streaming market everyone else didn't see or didn't want to see).

## 7 The Positioning

Apple's recent problems in China, which it has corrected, go to show that positioning one's offering in the marketplace involves both a product as well as a price positioning, relative to both its customers and its competitors:

### 7.1 Product Positioning

Playing on its unique strength as a developer of high-quality products, Apple deliberately chose to position itself at the higher end of the market. It took Apple no less than 4 painstaking years to develop the iPhone and another 5 years to push Blackberry out of the market.

As Alfred Sloan would have said, the strategy was to sell to those Blackberry customers in the lower-end segment willing to pay a little more for the additional quality offered by Apple in the higher-end segment

### 7.2 Price Positioning

The worst decision a firm can make is to price its offering out of the market, above the customer perceived price, in other words to price the offer above what its customers think it is really worth.

This overpricing may explain what happened with the iPhone in China, where Apple witnessed from 2016 to 2019 a continuous decline in both sales and market share. In September 2019, it finally reduced the price of its entry model iPhone XR and iPhone 11 to \$600 as well as offered a further \$100 to \$200 trade-in discount for older models and Android phones and possibly increased channel partner margins.

Radically revamping this pricing policy alone was not enough to reverse the decline in sales. It was only by also substantially enhancing the quality of the iPhone 12, its customer perceived value, that its sales grew again and at double digit rates. As described in more detail in point 14, Apple's product/price overhaul was a success, as sales in China once more grew by 70% from \$40B in 2020 to \$68B in 2021 and to \$74B in 2022

(Apple is again witnessing a continuous decline in sales in China, with sales declining from \$74B in 2023 to \$66B in 2024 and to \$64B in 2025)

### 7.3 Absolute vs Relative Growth

Just as Blackberry must have realized too late when in May 2011 its sales suddenly tanked while iPhone sales skyrocketed, Apple must also have had a short moment of panic when it saw its sales decrease from \$52B in 2018 to \$44B in 2019 then to \$40B in 2020, while Huawei's sales of what were in fact iPhone clones shot up.

In absolute terms, Apple grew prior to 2019, but in relative terms, Huawei grew even more than them. Unlike Blackberry who resisted change, Apple bounced back in 2021 with a spate of new products, resulting in a 70% increase in revenue in China to \$68B in 2021 against \$40B the year before.

## 8 The Strategy

Firmly positioned at the higher-end, Apple's business strategy is to be the market leader, rather than the market follower, across all stages of the value chain:

### 8.1 Channel Leadership

Build up an integrated distribution channel which could seamlessly cross-sell between its online and offline stores. The first Apple store was opened in 2001, the iTunes store also in 2001 and the online App store in 2008. The computer programs of both online websites, or platforms as they are now called, were written in off the shelf Open Source application and web programming languages

### 8.2 Product and Brand Leadership

Equip all products with a Unix-based operating system and a Risc-based CPU chip. Both the OS's and the chip's software were also coded in Open Source languages. All of Apple's products were to be designed for ease-of-use, exceptional aesthetics and to contain the latest breakthrough technologies (i.e. its AI apps in facial recognition Face ID and in speech recognition Siri, and in 2020, the latest AR/VR and 5G technologies)

### 8.3 Market Leadership

Position the iPhone at the higher-end but price it at the lower-end to penetrate the market. It took Apple 6 years to acquire a large enough base of new customers, to whom it would sell cumulatively some 300 million iPhone handsets between 2007 and 2013. It took another 6 years for Apple to turn its new customers into loyal customers, creating its own replacement market

### 8.4 Industry Leadership

Design in-house the products to guarantee the highest quality its demanding customers expect but subcontract production to keep costs low.

Innovate at breakneck [speed](#) to reduce the [product lifecycle](#) to a year. Apple has deliberately chosen to design itself its products and chips, which are nonetheless based on standards followed by the industry as a whole. It achieves [scale](#)

- i) [upstream](#) from the massive volume of the lower-value parts and components produced by the industry, which go into the final product
- ii) [downstream](#) from the higher-value production of the final product itself, i.e. high-performance chips by TSMC, finished product assembly by Foxconn, AI integration at home.

### 8.5 Digital Leadership

Apple's Cloud platforms are designed to give visitors a unique interactive digital experience. They are what is now commonly known as digital experience platforms or DXP.

## 9 The Ideal Product

Apple succeeded in designing what marketers call the "ideal product" which neither its customers nor its competitors thought possible to make, that is 16 years ago.

It took them 4 painstaking years before they came up with the final design of the iPhone in 2007. For the first time, as of November 2025, in my view, Apple is trailing behind a formidable competitor that is Huawei.

How to beat Huawei the only area where the Chinese is behind us is in AI. Their DeepSeek chatbot is behind ours. To regain leadership over Huawei, Apple may have to acquire Perplexity, one of our chatbot makers.

## 10 The Core Excellence

Apple's core excellence is its developer platform. It is in fact three platforms in one: the software engineering platform, the hardware engineering platform, and integrating both together, the user interface platform:

### 10.1 The Software Engineering Platform

#### 10.1.1 The Requirements

At the time of its inception, to attract the most talented developers, Apple's developer platform had to fulfil 3 requirements, namely:

**1st Requirement** It had to be easy to use. Just as it chose Unix for its simplicity to develop its computers' operating system, the MacOS, Apple did likewise for its developer platform. It relies on merely 2 programming languages and 2 repositories of tools, also known as "frameworks", to help developers develop their customers' end-user applications. The 2 languages are Objective-C and its more simplified version Swift. The 2 frameworks are Cocoa originally conceived for its PCs and Cocoa Touch for its mobile devices, beginning with the iPhone

**2nd Requirement** It had to be "cross-platform" so that developers adept at other programming languages, whether it is Java, Python, Ruby, etc., could also use it. Apple's platform is connected to all of the frameworks which are most commonly used by developers.

**3rd Requirement** It had to provide an outlet for developers to sell their apps. The creation of the App Store in 2008 is such an outlet. Since its founding, it has generated \$100B of gross revenue, with \$70B pocketed by the developers and \$30B pocketed by Apple

#### 10.1.2 The Software Tools:

**Coding Tools** Its Swift web application framework is connected to 12 other frameworks and its Objective-C framework is connected to 7 other frameworks

**Testing Tools** Its framework to test software, TeamCity, is connected to 10 other frameworks. Its software version control and release framework, Xcode, is connected to 8 other frameworks. Its software performance control framework, Pingdom, is connected to 40 other frameworks

#### 10.1.3 Application Development Tools

It is through the Sentry error detection framework that Apple's developer platform is connected to the much broader developer network. The following is a sample of some 70 frameworks it is connected to:

- . **languages** (Java/Javascript, Python, PHP, Ruby on Rails),
- . **operating systems** (Matcha, LambdaNative),
- . **interactive applications** (node.js, angularJS), AI applications (Nanonets, Swift AI),
- . **cloud applications** (Apache OpenWhisk), web applications (Vapor, AnyChart),
- . **user interface applications** (Material, Render),

. [AR/VR/3D applications](#) (Amazon Sumerian).

## 10.2 The Hardware Engineering Platform

Apple rightly chose to focus on only a few technologies, in fact 3, that would allow it to maintain its wide lead over its rivals, namely optical, chip, and network technologies as follows:

### 10.2.1 Optical Technologies

The first iPhone, launched in 2007 had a single-lens 2-megapixel camera. The 2022 model, the iPhone 14 Pro, has one 48 MP camera at f/1.78 aperture, one ultrawide 12 MP camera at f/2.2 aperture, 1 12 MP telephoto lens at f/1.78 aperture, one 12 MP telephoto lens at f/2.8, all running on a neural engine chip capable of making 5000 adjustments per second and of capturing low-light vision.

The telephoto camera, used for portraits, equipped with Apple's proprietary TrueDepth camera system and Face ID AI facial recognition software, is able to capture 30 000 invisible dots to create a depth map of your face. The LiDAR Scanner on the 2022 iPhone 14 Pro and iPad Pro run the latest Augmented Reality (AR) applications used to map "room-scale" objects as far as 5 meters away

### 10.2.2 Processing Chip

**Chip Performance** The CPU chip which equipped the first iPhone in 2007 had a clock-speed of 0.412 Ghz, was a 32-bit processor and 90 nm in size. End 2022, the A16 Bionic chip on its iPhone 14 Pro has a clock-speed of 3.46 GhZ on its performance cores and 2.02GhZ on its energy-efficient cores, is a 64-bit processor, is 5nm in size and has an AI neural engine.

**Chip Transistor Count** Other than the increase in the number of transistors (from 1B on the A4 to 16B on the A16 and of transistor nodes ("gates") using extreme ultraviolet (EUV) litho-photography nanotechnology machines to engrave them on a silicon die of 88 square millimeters,

**Chip AI neural engine** of the last 3 years has been in the use i) of programmable chips (FGPA and ASIC), ii) of machine learning accelerator chips (Apple's "AMX blocks") added onto the CPU and GPU chips, iii) of an AI neural engine to properly allocate workloads to the best suited chip to achieve speed and lowest power consumption.

### 10.2.3 Network Technologies

As part of its strategy to design in-house key critical technologies, Apple acquired Dialog's power management chip business end 2018.

**M&A** Regarding the highly strategic 5G wireless modem, Apple first bought out, in 7/2019, Intel's 5G modem business, taking ownership of key patents and bringing in 2200 engineers. Then, in December 2019, it struck a 6-year agreement with Qualcomm to co-develop a 5G modem, combining Intel's and Qualcomm's Snapdragon technologies. Beg 2021, Apple began recruitment of telecom engineers to develop 6G.

## 10.3 The User Interface Platform

With the iPhone's two signature user interfaces, the touch screen and its natural language (NLP) voice assistant Siri, Apple has shown its unrivalled mastery of the entire technology innovation process, in [product development](#) and [in business development](#).

With the touch screen, which was invented in the late 60s, its innovation insight was

- i) to develop the product, the iPhone and its iOS operating software to accommodate the touch screen instead of the other way around
- ii) to develop the business, by finding the leading channel partner, AT&T, to distribute it at scale.

It recently did the same with 2 other technology inventions from the 70s, [AI voice recognition](#) with Siri and [AI facial recognition](#) with TrueDepth.

## 11 The Threat of Substitutes

Of the 5 forces of Porter's model, it is perhaps the threat of substitutes coming from competitors, incumbents and challengers alike, which is perhaps the most important.

Apple's iTunes transactional revenue model has struggled against newcomer Spotify's subscription model, even if Apple Music, introduced recently to fight off Spotify, is gaining traction.

Thanks to its Apple Ad offering which it includes in all its subscription apps (App Store, ...), Apple's adoption of the mixed ad/subscription revenue model is now complete.

Today, in 2025, Apple faces 2 formidable competitors. At home, [OpenAI](#) is literally remaking the ITC market as we know it. Abroad, in China, [Huawei](#) is creating an entirely new ecosystem with its foldable devices, which run on its own proprietary Harmony OS operating system and Kirin chips.

## 12 Customer Trust

As a business, the question one should perhaps ask following the Facebook-Cambridge Analytica scandal is why Facebook, a company whom we thought would protect our privacy, would sell our personal data to third parties, just to make a quick buck. Trust, not the product, is what makes customers buy and want to come back.

## 13 Market Growth

### 13.1 The Target Market

Apple has targeted what it calls "Apps & Services" as its next major source of growth, which is forecast to generate \$72B of annual revenue by 2022 or twice its 2019 level (last twelve months or LTM). In FY 2025, services revenue hit \$109B.

For each dollar of revenue it would generate from its Apps and Services business, Apple is expected to generate an additional dollar of revenue from its iPhone. For the iPhone, with its 90% [penetration rate](#) in the business market, would be used as the traffic builder to sell its new apps and services market offering.

### 13.2 Putting the best people in charge

As shown on the org chart above, to drive what is really a dual-track growth, Apple has put two of its ablest executives in charge: Eddy Cue and Susan Prescott, respectively to run the consumer business and the enterprise business.

Both can rely on 3 highly experienced sales & marketing executives in Tim Cook, the CEO, Phil Schiller in marketing and Angela Ahrendts and her successor Deidre O'Brien in consumer and retail sales.

### 13.3 The Consumer and Professional Markets

In the [consumer market](#), the major drivers are subscription-based applications (Netflix, HBO Now, Tinder, Spotify, Pandora) for adults and games (Honor of Kings, Monster Strike, ...) for a younger audience.

In the [professional market](#), the App store has also garnered some 20 million developers, who have sold since its creation in 2008 some \$100B of cumulative revenue.

### 13.4 The Business Market

In the business market, to crack into the Fortune 500 market, Apple has partnered with the major IT companies.

Among the most talked about partnerships are the following: Salesforce.com in CRM and sales, Cisco in networking, IBM in big data, Accenture and Deloitte in digital transformation, SAP in ERP, GE in Industrial IoT. Apple will act as the Mobile provider and its partners as the Cloud, Data Analytics and Network providers.

All are undergoing a makeover of their businesses to integrate [AI](#).

## 14 The Chinese Market

### 14.1 The 4 Ps

There is the strategy one needs to define for the firm. Then, there is the business model one needs to develop for each market one wants to enter. To us, the best approach to business modelling is to develop the marketing mix's 4 Ps.

### 14.2 How the Chinese outsmarted Apple

In China, Apple lost sales volume and market share in 2019, 2020. Chinese consumers made a massive switch to what were in fact iPhone clones, made by their local champions, Huawei, Xiaomi, Oppo.

[Rural vs Urban Market](#) These 3 Chinese upstarts executed brilliantly the 4 Ps, better than Apple did. However, the market disruptor in China was not Huawei but a rather discreet newcomer, Oppo.

It pushed aside both its domestic and foreign rivals to gain the number one spot with 40% of the Chinese market with its Oppo and Vivo brands. It followed a classic textbook strategy, by tapping into a vast market its competitors somehow shunned, the rural market (650M people). To service it, it aggressively built up what has become a retail network of 200,000 stores across the country.

From this beach head, Oppo moved into the urban market (also 650M people), by upgrading its product offering to meet the needs of higher-income customers.

In hindsight, whether Apple could have opened its Apple stores more aggressively across China, in both the rural and urban areas, in order to pre-empt the encroachment of Oppo on its own turf at the higher end of the market remains a question mark.

There are 2 other players who are not to be underestimated: Lenovo and Tecno.

### 14.3 How Apple went back to the drawing boards, using the 4 Ps

After a 2-year lull in sales in 2019 and 2020 hovering at \$40B a year, Apple finally bounced back in 2021, as it witnessed an increase of 70% in sales.

- . **Product** it is the new iPhone 12, far superior to its rivals' smartphones, which is behind the success.
- . **Price, Promotion, and Place** the biggest challenge for Apple is to ensure further growth of the high-end market segment it is in, by luring customers from the mid- to lower-tier segments. Distribution partner markup and financing and new Apple Store openings will be key decisions it will make. Apple's Greater China revenue bounced back, increasing by 70% to \$68B in 2021 against prior year and to \$74B in 2022. (However, China sales decreased to \$64B in FY 2025 from \$68B in 2024 and \$74B in 2023).

### 14.4 How Apple Won the Camera War against the Chinese in 2021

Apple knew that the AI camera chips it was developing in-house would blow its Chinese Clone competitors out of the water. In 2019 and 2020, as the Chinese were showcasing models with a higher pixel count generated by non-AI chips, Apple quietly developed an entirely new camera system, comprised of:

- . **Software** an AI neural engine called **Deep Fusion**, which allows the camera to take multiple shots then select the one with the perfect focus, all in a couple of milliseconds
- . **Hardware** a new sensor, called the quad-sensor which was designed to pack in more pixels on the sensor (one of its iPhone 14 Pro cameras has 48 megapixels).

Sales of the iPhone 12, equipped with this new camera system, increased by 70% in 2021 versus previous year models. (In fiscal year 2025, worldwide iPhone sales reached \$210B, although sales in China may have dropped as I mentioned earlier).

## 15 The Streaming Market

### 15.1 The Streaming Market

Streaming, which is the airing of TV over the Internet, represented until 10 years ago a segment of the broader TV market, with a market share of 20% to the 80% held by the traditional TV and Cable TV networks.

The dominance of these traditional TV networks can be attributed to 2 major barriers to entry they managed to erect and maintain, albeit at a very high cost (financed almost solely by debt), for nearly 20 years, from 1990 to 2010:

- . **the first entry barrier** was their proprietary physical networks used for the distribution of their content, which were deemed superior, at least compared to a much less powerful and slower Internet at the time, still mostly run on 3G for most of their viewers through their Wi-fi connections.
- . **the second entry barrier** involved the production of their content. Their dominance over both the distribution and production of content was achieved through a wave of mergers and acquisitions, to vertically integrate their operations into a handful of so-called multi-system operators or MSO's, i.e. Disney with ABC, Paramount with CBS, Comcast with NBC, ...

But the advent and generalization of 4G in the early 2010s, which made the Internet into a far superior and quasi-free physical network, not only lifted a major barrier for upstarts to enter the market, but also forced the incumbents, the major TV networks, to join it. 2007 was a watershed year. The first iPhone was launched.

Netflix, who was able to use the Internet practically for free to air their content (which they still had to purchase from the majors), changed its entire business model to streaming. The Internet became the dominant distribution channel for content. Then in 2013, Netflix created its own movie studio, lifting the second barrier, the production of content. To the extent that 3 previously distinct networks (phone, TV, Internet) now run on one and the same computer network, the Internet, all of TV is now entirely streamed, that is aired solely through the Internet

### 15.2 Mini-Case: Netflix

We tend to forget that Netflix came on the scene at the same time, as a first mover, as Amazon and Google in the mid- to late 90s.

**eCommerce Fundamentals** As a subscription DVD by mail rental service provider, like Amazon in online book sales, its competitive advantage over the "brick and mortar" stores was based on what we can now call the 4 fundamentals of eCommerce: .

- . **Wide Assortment** Wide and deep assortment (maximizing library utilization to maximize inventory turnover, is a key metric),

- . **Personalized Merchandising** Personalized merchandising using its proprietary software to make customer recommendations, based on subscriber ratings and history (minimizing churn, that is customer turnover, is a key metric).

- . **Scalable Business Model** Maximizing the revenue to cost ratio and return on capital employed is a key metric.

- . **Easy Web Navigation** easy to navigate website to maximize customer satisfaction. In 1999, its first full year of operations, it had 107K DVD subscribers.

But over the next 3 years, as membership rose exponentially to reach in 2002 807k subscribers, still all DVD, Netflix succeeded in raising from PE firms and an IPO a total of \$210M, possibly with the intention to use it to finance the development of a streaming business. In January 2007, its streaming platform went live.

In 2011, its base reached 20M streaming subscribers, half of whom also had a DVD subscription.

In 2012, the transition from DVD subscription to streaming subscription was complete.

In 2013, to be less dependent on the film studios for its content but also to adapt to its younger, more global and more culturally diverse and inclusive audience (2/3 of its subscribers are non-US), who prefer to stream on the Internet than to watch TV, it decided to become a movie studio of its own.

The success was immediate, as its base increased from 33M subscribers in 2013 to 167M in 2019 and to 230M end 2022.

In FY 2024, its operating income reached \$10.4B on revenue of \$39B, with its % operating income improving by 9 percentage points to 26% versus 2023. Membership hovers at 301M end 2024, increasing by 15% to 20% a year.

### 15.3 Apple's 935M Streaming Subscribers

Apple's 2 major streaming services, Apple TV+ and Apple Music, still hold a modest subscriber base: 25M to Netflix's 230M, 80M to Spotify's 200M. The remaining 825M are those it sells 3rd-Party subscriptions to on the App Store, i.e. for Disney+, Paramount+, HBO Max, and online gaming sites, ..

## 16 The Internet TV and Fintech Markets

In both trillion-dollar markets which are TV and Payment, Apple provides 4 key apps customers can easily download on their devices to watch TV and make mobile payments.

. **Internet TV** the free Apple TV app allows customers to subscribe on an online platform via the App Store to both 3rd-party channels and its own Apple TV+ channel.

. **Mobile payments** the free Apple Pay app allows customers to make payments with 3rd-party credit cards and with its own credit card, the Apple Card

### 16.1 Apple's Streaming Strategy (Apple TV and Apple TV+)

With the Internet becoming the sole physical network to air content, the traditional TV networks (CBS, Liberty Media, ...) can no longer charge a subscription premium for use of their once exclusive proprietary networks.

**Content is King** Likewise, upstarts like Netflix have been able to enter the TV market almost free of charge, the Internet being free. With this barrier to entry lifted, competition has shifted to providing content

### 16.2 Apple's Fintech Strategy (Apple Pay + Apple Card)

As with its Apple TV and Apple TV+ dual offering, Apple will use Apple Pay to carry 3rd-party credit cards, such as Visa and Mastercard as well as the Apple Card.

In both cases, Apple will earn both processing fees on the 3rd-party credit cards and interest income on its Apple Card, on the sale not only of 3rd-party products but also of its own products (which Apple Card holders can buy in instalments)

## 17 Enterprise Value vs Market Value

Apple's stock reached an all-time high to about \$56 per share on October 1, 2018. Overall end Sep 2018 fiscal year sales reached \$265B, an increase of 15% over the previous year, with operating income increasing by the same percentage.

In spite of stellar results, technology stocks plunged somewhat unexpectedly by 30% to 40% in Q4 2018, only to regain the following quarter 80% of its peak Q3 2018 value.

Thus, Apple did the right thing by choosing not to be distracted by the 3-month speculative window capital markets like to play in, as in Q4, 2018. It preferred to focus on the long-term fundamentals of the business.

**Invest Long-Term in R&D** No better metric than its annual spending in R&D over a 3-year strategic horizon reflects this commitment, which increased from \$8B in 2015, to \$10B-\$11.5B in 2016/17, to \$14.2B in 2018, to \$18.8B in 2020. As of October 2022, Apple's stock price hit \$148 per share, a more

than 4-fold increase compared to its 2015 price (both Apple share prices are on a 4-for-1 stock split basis of Aug 2020).

Apple's market cap reached [\\$4.04T](#) in November 2025 compared to just [\\$2B](#) in 1997 when Jobs returned to Apple.

## 18 Succession Planning

The time has come for Apple to replace its top management team. I see four very serious internal contenders for the CEO, COO, CFO, and Head of AI positions:

[Tor Myhren as CEO](#) He cut his teeth in advertising at market-disruptive ad firms, acquiring a unique mastery of the latest Internet and Web technologies. With such deep expertise, Myhren is ideally suited to lead Apple's vision, culture, and customer engagement into the next technology frontier, the new AI era.

[Adrian Perica as COO](#) As Apple's seasoned head of Corporate Development, Perica brings strategic M&A expertise, at a time when Apple can only grow externally, by acquiring both technologies and talent it does not possess in-house. A West Point grad trained in engineering at MIT, he would bring unique integration and execution discipline to the job.

[Kevin Parekh as CFO](#) Kevan Parekh has been the number 2 alter ego of Apple's CFO for a over a decade. Judging by the confidence and bluntness with which he vets questions at Apple's 10Q calls, he is the ideal person to rethink the firm's capital allocation strategy, by perhaps steering a bit more away from stock buybacks and reshoring and moving more towards addressing a formidable competitive threat from Huawei.

[Isabel Ge Mahe as Head of AI](#) Ge Mahe's deep market and technological knowledge of China, combined with her leadership within Apple's Greater China region, makes her uniquely qualified to lead Apple's AI efforts. Given that China represents the greatest AI competitive threat, her expertise is critical for tailoring AI strategies and innovations that resonate both globally and in the most challenging markets.

It appears that Tim Cook does yet want to let go nor do his closest executives, most of whom are approaching their 60's. However, further down the ranks, the 500 key Vice Presidents, most of whom are in their 30s and 40s are ready to welcome the new leadership, with whom they've worked for years and whom they've come to respect. In our view, there is no risk that things will fall apart if Tim decides to step down tomorrow.