

Why The iPhone was the perfect product

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EVERYTHING AS A SERVICE

Last month Benedict Evans observed that [The Best is the Last](#):

A technology often produces its best results just when it's ready to be replaced — it's the best it's ever been, but it's also the best it could ever be. There's no room for more optimisation — the technology has run its course and it's time for something new, and any further attempts at optimisation produce something that doesn't make much sense.

The development of technologies tends to follow an S-Curve: they improve slowly, then quickly, and then slowly again. And at that last stage, they're really, really good. Everything has been optimised and worked out and understood, and they're fast, cheap and reliable. That's also often the point that a new architecture comes to replace them. You can see this very clearly today in devices such as **Apple's** new Macbook or Windows 'ultrabooks' — they've taken Intel's x86 and the mouse and window-based GUI model as far as they can go, and reached the point that everything possible has been optimised. Smartphones are probably at the point that the curve is starting to flatten...

Evans' post was particularly timely as only days later **Apple** released quarterly results and an earnings forecast that were well under expectations,

and the primary reason cited by **Apple** CEO Tim Cook was a significantly slower iPhone upgrade rate.

It is certainly reasonable to argue that this slowdown is temporary — an artifact of the iPhone 6 pulling forward upgrades from iPhone users clamoring for larger screens — and that the iPhone 7 will return the franchise to growth; personally, I tend to [agree with Neil Cybart](#) that iPhone growth has indeed peaked — structural growth factors like new countries and carriers are largely tapped out,

and while **Apple** will still draw switchers, they won't draw enough to make up for existing

customers not upgrading — but even if you disagree, your disagreement by definition must be one of timing.

As we've seen with first PCs and then tablets, as hardware matures upgrade cycles inevitably lengthen and choke off growth. That the iPhone grew far beyond either of these product categories — far beyond any product ever, at least in revenue and profit terms — is a testament to the incredible market that was smartphones, and the incredible product that was the iPhone.

Indeed, it was the best market — and best product — we've ever seen; the question is if it is the last.

THE MANUFACTURING MODEL

From the industrial revolution on, the dominant business model has been manufacturing goods and selling them at (hopefully) a profit. This had a huge number of knock-on effects, including the shift in population from rural areas to urban ones, in cities created around transportation hubs and markets. Manufactured goods (or food produced on increasingly mechanized farms) were transported to a central location, made available for purchase, and carried home by individual buyers, themselves primarily occupied in the creation of said goods. Over time, as economies matured, new types of businesses sprang up like professional services (lawyers, doctors, etc.), transportation, or luxuries like grooming or dining, but it was manufacturing that led to the creation of the critical mass of people necessary to make these sorts of businesses viable.

Over the past thirty years, this way of organizing people (in developed countries) has been increasingly hollowed out; thanks to improved communication and transportation links a wave of globalization has shifted manufacturing to the developing world and made services an increasingly central part of the economy (78% of U.S. GDP [in 2015](#)). This, though, has made companies capable of working and selling across borders more valuable than ever before, and chief amongst these is **Apple**.

Apple has arguably perfected the manufacturing model: most of the company's corporate employees

are employed in California in the **design** and **marketing** of iconic devices that are created in Chinese factories built and run to **Apple's** exacting standards (including a substantial number of employees on site), and then transported all over the world to consumers eager for best-in-class smartphones, tablets, computers, and smartwatches.

What makes this model so effective — and so profitable — is that **Apple** has differentiated its otherwise commoditizable hardware with software. Software is a completely new type of good in that it is both infinitely differentiable yet infinitely copyable; this means that any piece of software is both completely unique yet has unlimited supply, leading to [a theoretical price](#) of \$0. However, by combining the differentiable qualities of software with hardware that requires real assets and commodities to manufacture, **Apple** is able to charge an incredible premium for its products.

The results speak for themselves: this past “down” quarter saw **Apple** rake in \$50.6 billion in revenue and \$10.5 billion in profit. Over the last nine years the iPhone alone has generated \$600 billion in revenue and nearly \$250 billion in gross profit. It is probably the most valuable — the “best”, at least from a business perspective — manufactured product of all time.

APPLE AND SERVICES

Few days back Tim Cook [appeared on CNBC's Mad Money with Jim Cramer](#) to defend the iPhone's prospects. Cook said:

Let's look at how did we do in this quarter, and what you would find is \$50 billion and \$10 billion in profit. No one else is earning anywhere near this.

They're the best!

But, the real answer to your question, is that the thing that is different is that customers love **Apple** products. And the relationship with **Apple** doesn't stop when you buy an iPhone. It continues. You might buy apps across the App Store. You might subscribe to **Apple** Music. You might use iCloud to buy additional storage. You might buy songs. You might rent movies. And so there's a significant number of things. You might use **Apple** Pay every day now. Or at least several times a week. And so that relationship continues.

This, though, is a subtle shift: Cook is not talking about **Apple's** ability to sell new iPhones — to make money with the old model — he is referring to the fact that **Apple** can (and does) make a significant amount of revenue from people *using* the iPhone. This is the “services” business model and the fact it shares a name with the economic activity that rose up around manufacturing over the last century is not an accident.

The fundamental difference between manufacturing and services is that one entails the creation and transfer of ownership of a product, while the other is much more intangible: you visit a doctor or hire a lawyer, and you don't get a widget to take home. Moreover, if you want more of a service, you have to pay more — when your hair grows back you don't get credit from the hairdresser for having visited just a few weeks or months prior.

Manufacturing can and does undergird services: your lawyer owns computers and has office space in a building that was constructed, and your doctor buys medical devices and prescribes drugs. Even your hairdresser buys scissors and clippers and hair rollers. Similarly, **Apple's** services by and large depend on you having bought an iPhone on which you can then subscribe to music or leverage the App Store or make a payment with **Apple** Pay. In most services business, though, what is manufactured is a modular component of the overall offering, subject to an ongoing cost-benefit comparison with competitors that drives down profits over time.

To be sure, these transactions are much smaller on an individual basis, at least compared to an iPhone: you would need to buy more than \$1000 worth of apps for **Apple** to earn the same

gross profit as the entry-level iPhone 6S, or subscribe to **Apple** Music for nearly 10 years, or make over \$215,000 in purchases with **Apple** Pay. What makes services so attractive, though, is that that is possible! Because services revenue is recurring and not tied to the delivery of a physical item it can scale indefinitely; **Apple**, on the other hand, faces a limit based on the number of people who can both afford their devices and are willing to upgrade.

SOFTWARE AND THE SERVICES MODEL

In this, services sound a lot like software: both are intangible, both scale infinitely, and both are infinitely customizable. It follows that a services business model — payment in exchange for service rendered, without the transfer of ownership — is a much more natural fit for software than the transaction model characteristic of manufacturing. It better matches [value generated and value received](#) — customers only pay if they use it, and producers are rewarded for making their product indispensable — and more efficiently allocates fixed costs: occasional users may be charged nothing at all, while regular users who find your software differentiated pay more than the marginal cost of providing it.

These advantages have always been obvious (along with other consumer-centric ones like the need to not install updates, or to move costs from capital to operational expenses), but when the software industry first emerged the model simply wasn't practical: there was no way to measure how often software was used, or to seamlessly add and remove users. There were, in short, significant distribution and transactional costs that were characteristic of the old manufacturing world, so a manufacturing business model was used.

The Internet has changed that: it is possible to run software on a central server for multiple clients (spreading the fixed costs amongst them), and there are zero transactional costs involved in calculating usage or in supporting new users (even free ones);

the result is that nearly all software now is now sold on a service model (or based on **advertising**, which is the same concept of pricing based on usage), including software that used to be sold like physical goods (like Adobe and Microsoft's offerings).

HARDWARE AS A SERVICE

What happens, though, if we apply the services business model to hardware? Consider an airplane: I fly thousands of miles a year, but while Stratechery is doing well, I certainly don't own my own plane! Rather, I fly on an airplane that is owned by an airline

that is paid for in part through some percentage of my ticket cost. I am, effectively, "renting" a seat on that airplane, and once that flight is gone I own nothing other than new GPS coordinates on my phone.

Now the process of buying an airplane ticket, identifying who I am, etc. is far more cumbersome than simply hopping in my car — there are significant transaction costs — but given that I can't afford an airplane it's worth putting up with when I have to travel long distances.

What happens, though, when those transaction costs are removed? Well, then you get **Uber** or its competitors: simply touch a button and a car that would have otherwise been unused will pick you up and take you where you want to go, for a price that is a tiny fraction of what the car cost to buy in the first place. The same model applies to hotels — instead of buying a house in every city you visit, simply rent a room — and **Airbnb** has taken the concept to a new level by leveraging unused space.

The enabling factor for both **Uber** and **Airbnb** applying a services business model to physical goods is your smartphone and the Internet: it enables distribution and transactions costs to be zero, making it infinitely more convenient to simply rent the physical goods you need instead of acquiring them outright.

SERVICES AND THE FUTURE

This idea of a new service-based economy that deprioritizes ownership in favor of renting what you need when you need it isn't a new one: people have been speculating about this for a few years, and in many cases experimenting with building such businesses out. Still, [outside of Uber, success has been limited](#). I'm reminded, though, of one of my favorite Bill Gates quotes:

We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten.

It was less than ten years ago that the iPhone was launched — that's how quickly the world can change. And while changing the status quo is hard, in the grand scheme of things, the fact that **Uber** and **Airbnb** only launched only seven and eight years ago respectively is pretty amazing. Moreover, it may be the case that some models require generational changes, or may first spring up in other geographies where people simply have less stuff.

With regards to the iPhone, it's hard to see its record revenues and profits ever being surpassed by another product, by **Apple** or anyone else: it is in many respects the perfect device from a business perspective, and given that whatever replaces it will likely be significantly less dependent on a physical interface and even more dependent on the cloud (which will help commoditize the hardware), it will likely be sold for much less and with much smaller profit margins.

More broadly, I suspect it is going to be increasingly difficult to analyze the future with any lens based on the past. The two companies that dominated earnings in a largely gloomy quarter — Facebook and Amazon — are both uniquely enabled by the Internet; Amazon lets you rent compute power without buying a server, and Facebook serves 1.6 billion people customized content from an effectively infinite number of sources.

Just as importantly, both companies are enabling new business models in their own right: [I wrote last fall](#) about how Amazon Web Services has dramatically lowered the barrier to entry for startups, and [as I wrote last week](#) Facebook may very well do the same when it comes to

advertising: it is easier, cheaper, yet more measurable (and thus justifiable) for a small business to advertise on Facebook than any other medium ever. Indeed, for all the billions that **Apple** has extracted from the App Store by virtue of owning distribution onto iPhones, it is Facebook that is actually “earning” the billions it is paid by app developers thanks to the disruptive nature of its **advertising** product. No, neither company has **Apple**’s profits, and will not for a long time if ever, but then again, they are at the beginning of something new, not the best of the last.

*The line it is drawn, the curse it is cast
The slow one now, will later be fast
As the present now, will later be past
The order is rapidly fadin’
And the first one now, will later be last
For the times they are a-changin’.*

— Bob Dylan, The Times They Are A-Changin’

Ironically, and tellingly as to the difficulty of this transition, only available on a transactional basis [in iTunes](#)

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