



# Will Smartphone ever be outdated?

What does the future of personal devices look like?

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Technology innovation is so precipitous that people have become accustomed to convenience; most nimble tasks like making a call or ordering food through an app are being performed by voice enabled AI assistants. Future consumers will drift away from using handheld devices, as the inconvenience of holding a physical object in your hand will be considered outdated. Just when you think this scenario is far-fetched, recent innovation initiatives from technology startups in wearable and next gen connectivity devices will make future seem closer

Smartphone industry has recently been faced with challenges of declining sales; studies have shown that worldwide sales of smartphones will dip to 2.5% by end of 2019. While smartphone penetration is still on the rise due to the most anticipated 5G arrival, this recent decline in sales is indicative of a slowed down growth due to high market saturation in matured markets.

In an effort to combat the declining sales in mature markets, Smartphone companies have been increasing the price of smartphones with their newer models without providing any real incentive for customers to make the switch. Consumers are not willing to spend thousands of dollars to upgrade their cellphones to a newer version with no significant innovative change or lack of new functionalities or a new revolutionary change in the smartphones technology itself. Although, Innovations in Smartphone technology has been very sluggish lately; years of homogenous innovation has lead for the industry to an innovation standstill. Most smartphone companies are trying to shift focus to other revenue streams like Apps, add on services and Advertisements, Smartphone giants like Apple.inc have recently announced its transformation into a leading digital service provider, this shift was consequential of the sluggish sales in Apple.Inc's three main businesses; smartphone, personal computers and tablets.



The fundamental question therefor is Will smartphones ever be outdated? And, what does the future of personal devices look like?

When we talk about smartphones being obsolete, we think about some radical change where suddenly smartphones will disappear and a new technology will replace it, which is not completely untrue. Companies like Microsoft, Apple and Facebook have all been working on next generation wearable technologies that will evolve in capabilities to surpass smartphone technology in aspects like functionality, mobility and processing. As the digital world converges into physical spaces and the human body is augmented with technology, the need for an external handheld devices will cease to exist, recent initiatives from companies like Apple, Tesla, Google, Facebook etc. in the space of Augmented and virtual reality and AI bequeaths light on the possibilities of a world with no hand held devices. Example: Magic Leap is working on a headset which is coupled with computing power though a small connected disc but is anticipated to be replaced with brain computing interface sensor. Immediate future for the evolution of smartphones is the integration of augmented and virtual reality, advancements in technology such as 5G, artificial intelligence, and brain-machine interfaces are expected to transform the experiences in the near future.

Below are some of the possible future technologies that will aid thinking about the replacement of physical devices:

**1. Integrated Bio Chips:** The reason for people to choose to go away from screens is to have a screen over your screen (Eyes), having no physical object confining the visual image within the boundaries. Apple and Microsoft are already working on using EEG to integrate smartphones with neural sensors technology; this will replace performing nimble activities by neural networks.

- **Companies in action**

- Neuralink founded by Elon Musk, aims at building integrated computer chips inside the brain by a Neural lace, These type of cutting edge tech developments might seem obscure but will be a social norm.



**2. Wearable's:** Current wearable technology are designed to depend on their host smartphones to gain processing and functionality; however, As mobile technology becomes less imposing and more integrated in our lives, computing integrated wearables will replace smartphones in form and functionality.

- **Wearable Bracelets:** Innovations in foldable displays will give rise to a new range of wearable bracelets that will act as mobile computing devices, Samsung is working on an integrated ecosystem of interconnected devices that will have foldable displays, and functionalities like 5G and AI to replace the singularity host concept of smartphones, This concept will act as a stepping stone to the future of interconnected smart devices without the need of a host smartphone. The initial idea is the evolution of foldable screen smartphones into bracelets like devices, these devices will act like a hybrid of Phone and wearable and later evolve and take various new forms and functionality. In theory these tiny bracelets like devices will be equipped with computing power and features like holograms and AI smart functions that will perform tasks more advanced than just providing connectivity.
- **Wearable Glasses:** Even though Google's first generation Smart glasses weren't as impactful and openly accepted by the consumers, tech giants are still pouring billions in investments for building the next generation smart glasses equipped with augmented reality, AI and smart computing power that will completely replace handheld smartphone devices, Facebook CEO announced in the company's annual conference in 2017 that smart glasses will replace smartphones by 2022.
- **Companies in Action:**
  - North: Focals is an AR glasses from an amazon backed company North, Focals has a digital display on the glasses which are controlled by a tiny ring fitted with a joystick and has a microphone for voice controlled commands.
  - Magic leap: Prototyped, Smart Glasses which are now equipped with a small handy computer disk, which will be replaced by BCI sensors, has raised \$2 billion in investments.



- **Companies in Action:**

- Myant: Produces smart garments integrated with electrodes and sensors that will sense heartbeat and muscle activity monitoring
- MC10: Produces Skin patch prototypes that monitor physiological activities of the body like temperature and sensors

**3. Brain-machine interfaces (BMI):** A primary function of smartphones is to provide a user-interface - an input device to transfer your requests / thoughts to the processing unit. Qwerty keyboards and touchscreen technology have certainly come a long way in improving the customer experience. However, once fully developed, a Brain-Machine interface will replace the phones as you would no longer need a device to physically touch the device. Communicating directly with a wearable in your ear or on your wrist will become viable with BMI. As this further develops and intersects with AI approaches in emotion reading, computational neuroscience and biophysics, BMI could become a fundamental tech in future gadgets.

- **Companies in action**

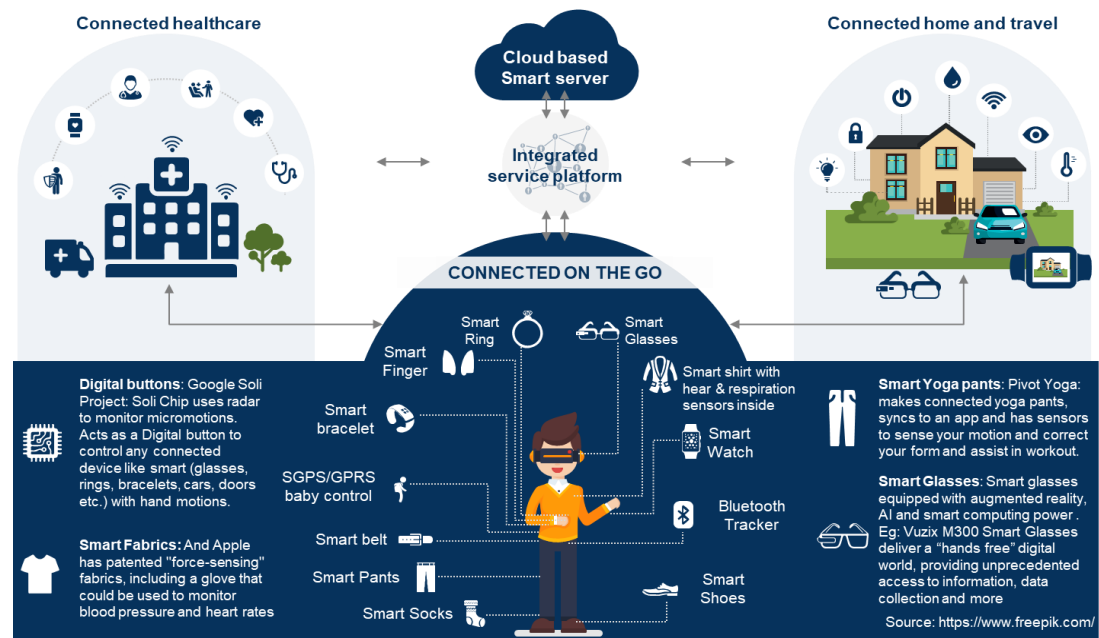
- Neurale: is working on brain- computer interfaces that allow people to control devices and software's using only their brain signals. Potentially venturing their applications to gaming and other industries
- NextMind: Developed Brain machine interface technology enabled head mount that allows users to command over external interfaces.

On a closing note, we know technology is rapidly advancing day by day; Physical assets are being integrated into the digital world. AI is believed to take over most of the functionalities performed by a smartphone; new innovations in smartphone technologies will evolve and change its functionality and utility, Hand held physical devices will slowly turn obsolete. This transition will happen gradually and in a very phased manner, as smartphones today still produce a huge chunk of revenue shares for most giant tech firms. The concept of smartphones will change and morphs into multiple computing devices that will still have the core technology of smartphones just changing the idea of connectivity. A Connected ecosystem with no handheld devices:



(Fig 1) represents an integrated ecosystem of interconnected devices with embedded functionalities like augmented reality, real time data collection and 5G connectivity, this concept of connected devices will replace the singularity of a smartphone. For the next decade smartphones will act as a central hub before being replaced by wearable screens, omnipresent voice assistants, and diffusive interfaces. Consumers will soon be surrounded by information--untethered from a single screen--and expect even their most mundane objects to do the most extraordinary tasks.

Figure 1: Integrated ecosystem of interconnected devices



By 2030, we will see a wave of these technologies that will sweep over the existence of hand held smartphone devices providing better connectivity, mobility and greater processing powers coupled with advanced connectivity through Next Gen XG capabilities, enabling Human Brain-AI computing power and advanced wireless capabilities. This may seem radical, but 15 years ago you would have never imagined being able to talk to a machine to order food and a robot coming to your door to deliver it.