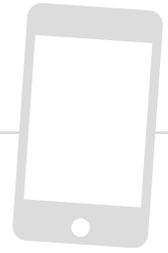


## Potted History of the Mobile Phone



Ever wondered why your parents are lacking in knowledge of the functionality of your mobile wizardry? Well, it might surprise you to know that mobile phone technology has only really developed over the last 30 years and the latest gadgetry only in the last seven! It's no wonder this busy generation can't keep up!

Below is a potted history of the mobile phone to help you consider the impact of technology on our lives. For a detailed timeline of telecommunications advances and to find out how your phone actually works, log on to [www.phonehistory.co.uk](http://www.phonehistory.co.uk)

### Mobile Phones: The First Generation (1980's)

First Generation (1G) mobile phone networks were the earliest cellular systems to develop. These early mobiles were not only big and heavy, but expensive too! They were a commercial tool rather than a personal item, and relied on a network of distributed transceivers to communicate with the mobile phones.

1G phones were analogue systems that could only be used for voice calls.

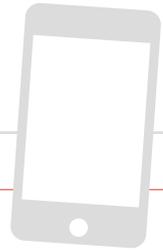
Their signals were transmitted by the method of frequency modulation.

These systems typically allocated one 25 MHz frequency band for the signals to be sent from the cell base station to the handset, and a second different 25 MHz band for signals being returned from the handset to the base station. These bands were then split into a number of communications channels, each of which would be used by a particular caller. The networks, therefore, could only support a low number of users at any one time. These first mobiles were unreliable, had poor voice quality and poor security for callers - who sometimes experienced interference

from others on the line and conversations could be listened into by anyone with a suitable receiver. The main drawback, however, was powering the handsets which initially involved carrying a separate battery pack (equivalent size to a pack of six canned drinks) everywhere you went!



## Potted History of the Mobile Phone



### Mobile Phones: The Second Generation (1990's)

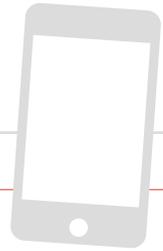
Second Generation (2G) mobile telephone networks were the logical next stage in the development of wireless systems after 1G. In the 1990s, 'second generation' (2G) mobile phone systems such as GSM began to be introduced. The first GSM network opened in Finland in 1991. 2G heralded the age of a mobile phone system that used purely digital technology, characterised by digital circuit switched transmission and the introduction of advanced and fast phone-to-network signalling.

The introduction of 2G systems also saw a move away from the large heavy 1G phones towards tiny 100–200g hand-held devices, which soon became the norm. This was possible because of the technological advancement in batteries and more energy-efficient electronics, but also because an increased demand for mobile phones led to an increase in the number of masts to transmit the signals, reducing the power required by individual handsets.

The demands placed on the networks, particularly in the densely populated areas within cities, meant that increasingly sophisticated methods had to be employed to handle the large number of calls, and avoid the risk of interference and dropped calls. With the new network technology developed to support 2G mobiles came more advanced features such as caller identity, simple message system (SMS) text messaging and access to media content through mobile phone handsets; including music, downloadable ring tones, advertising, news bulletins, financial market and sports score updates. Initially only available on GSM networks, SMS instantly became a popular new means of communication. The first person-to-person SMS text message was sent in Finland in 1993. Today SMS is the preferred communication method for under 20's.



## Potted History of the Mobile Phone



### Mobile Phones: The Third Generation (2000's)

Not long after the introduction of 2G networks, projects began to develop third generation (3G) systems. During the development of 3G systems, 2.5G systems such as CDMA2000 1x and GPRS were developed as extensions to existing 2G networks. These provided some of the features of 3G without matching the high data rates or full range of 3G multimedia services. 3G mobile telephone networks allow for much higher data transmission rates and increased capacity compared with 2G. This means 3G is able to support new features requiring high-speed data transfer such as; TV streaming, multimedia, videoconferencing, web browsing, email, paging, fax, and navigational maps. Obviously 3G also allows for traditional voice calls and simple messaging system (SMS) too!



3G systems use packet-switching technology, which is more efficient and faster than the traditional circuit-switched systems, but requires a slightly different infrastructure to 2G systems. The first pre-commercial trial network of 3G technology was launched in Japan in May 2001. This was swiftly followed by the launch of competitive 3G compatible networks in South Korea, and Monet in the USA. By March 2002 the first European launches of 3G were in Italy and the UK.

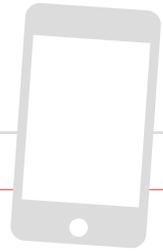
By the end of 2007 there were 295 million subscribers on 3G networks worldwide, which reflected 9% of the total worldwide subscriber base. By the end of 2007 it had become clear that 3G was gaining domination and on the path to become a very profitable venture.

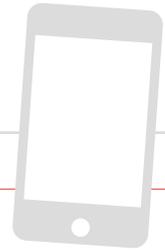
## Potted History of the Mobile Phone

### Mobile Phones: The Fourth Generation (Now)

4G mobile technologies were launched in the UK on 2012. They use networks previously used for analogue TV and radio broadcasts. As the digital switchover takes place across the country, this frequency space is being freed up and reassigned for mobile broadband use. Ofcom say the increased capacity is “essential in meeting the UK’s rapid increase in mobile traffic, fuelled by the growth of smartphones and mobile broadband data services such as; video streaming, email, messenger services, mapping services and social networking”.

4G downloads are around 3 times faster than the 3G network and have enhanced picture quality for video streaming. By 2020 it could even be 4 to 5 times faster than our existing 3G technology. It is hoped that 4G will be better at meeting the needs of mobile data usage and opening up new possibilities for 4G mobile phones and laptops.





## Potted History of the Mobile Phone

### Mobile Phones: What's Next?

Here are some areas where mobile technology is already advancing:

- Real-time connectivity, facilitating video-calling and allowing you to see events, as they are actually happening, regardless of where in the world you are.
- Faster networks and devices, transmission rates up to 200 times faster than 2G.
- Personalised service – Information filtered according to the user's location, preferences and behaviour.
- Access to everything anywhere - including music, photos, emails and documents.
- Explosion of apps - online and on mobiles.
- Augmented reality – information overlaid onto our view of the real world
- 3D virtual reality and interactive video/hologram images.
- Online and mobile marketing – special offers and loyalty schemes targeted by user and location.
- Consumer-led mobile health for monitoring and diagnosis.
- Tablets replacing laptops as the future of mobile computing.
- Smartphones becoming more widespread throughout the world.
- 'Gamification' – turning everyday activities into games with rewards to be gained.
- Interactions between technologies, for example, the smartcard in your mobile phone will automatically pay for goods as you pass a linked payment kiosk - or will tell your car to warm up in the morning, because your phone has noted you leaving the house or setting the alarm.

---

**Which of these do you think will take off?**

**Where will mobile phones go next?**

**What are your predictions?**

## Potted History of the Mobile Phone



### Facts

Sadly, in all the technological development that has evolved, the 'unstealable' mobile is yet to be designed and with the increased functionality of our smart phones, comes an increase in mobile phone crime:

- There are 2 million phone thefts every year, with children and young adults the most likely victims.
- Mobile phone theft accounts for about 45 per cent of all thefts on the London Underground.
- Two thirds of robberies are committed by offenders working in groups.
- About a half of all street robberies in Britain involve mobile phone theft and almost half of these victims are aged between 12 and 16.

In fact, rapidly changing technologies have increased the value and variety of handsets and given a boost to opportunistic criminals at the same time. **REMEMBER** the more up-to-date your handset and the more gadgets your

mobile phone has, the greater the risk of it being stolen!

At the moment our only defence against mobile phone crime is to register your handset with Immobilise. With 80% of stolen phones blocked within 48 hours, if it does fall into the wrong hands it will render it useless. Find out more about protecting your phone and other portable electronic devices by logging on to [www.immobilise.com](http://www.immobilise.com)

Even with the help of Immobilise we can't stop thieves accessing the web from wifi enabled handsets, or more importantly, from accessing your personal details. So make sure you password or PIN protect sensitive information, or better still store it away from your handset in a password protected email account. You can also download the technology to track and even communicate with perpetrators using apps such as 'Find My iPhone', 'lookout mobile security' and 'Norton mobile security'.