A social history of the mobile telephone with a view of its future

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The social history of the mobile telephone involves both the history of technological development and an account of changing social and political frameworks into which the new technological developments become integrated. The technological innovations of mobile telephony were established from the 1940s, but it was not until the 1990s that adoption took off. It has been claimed that the mobile telephone revolution can be explained by changes in the way communication happens through social networks, away from old hierarchical forms. Several unique communicative and behavioural patterns have emerged in countries with mass use of the mobile telephone, including texting (SMS) and the development of new social norms. Nevertheless there is still huge global variation in use and development, and more research needs to be conducted which responds to very local patterns of use and reuse.

1. Introduction
The history of the mobile telephone is as much about social and political developments as it is about the emergence of new technologies, standards and systems. As Jon Agar has pointed out, the mobile telephone has been:

‘... a way of rebuilding economies in eastern Europe, an instrument of unification in western Europe, a fashion statement in Finland or Japan, a mundane means of communication in the USA ... an agent of political change in the Philippines ...’ [1]

Even within one culture such as that of the UK, the mobile telephone may have multiple meanings. For example, it may be linked to youth culture through texting, business activities via data services, or motherhood as it allows the notion of shifting roles between work and home. Therefore any history of the mobile telephone must take on board the links between technical features and social relations, between functionality and cultural norms.

The growing penetration of mobile telephony and mobile communications in the UK suggests that none of us can remain immune to the social and cultural consequences in our everyday lives. Non-ownership of a mobile telephone has become an identity as important as ownership. While it took the domestic telephone approximately thirty years to migrate from an instrument found most often in the hallway of the home in the 1960s, to its ubiquitous position today in the living room, kitchen, and bedroom, the mobile telephone found its way into our pockets in less than half that time. Prior to 1985, no one in Britain had a mobile telephone, now most people own, or have access to one; in 2002 the World Telecommunications Development Report stated that every sixth person in the world had a mobile telephone [2, 3]. The number of mobile subscribers around the world is likely to reach 1.4 billion this year, far more than the number of land lines (1.1 billion). Over the last decade in particular, mobile telephone use has escalated dramatically and for many people, the ability to communicate while on the move is now seen as essential to business, commerce, individual lifestyles and everyday social interaction.

A social history of the mobile telephone is not just a history of a shifting concept of mobility. In fact, the linking of mobile telephones with mobility may be premature; young people, for example may use text to communicate across very small distances, even across the room. Even if mobility is the key social concept, it is cross-cut by cultural behaviours and beliefs about intimacy, the role of public space, the changing place of women in the labour market, customisation of commodities, to name just a few. The mobile telephone has a global history in the sense that it has been developed or stalled by national politics as much as engineering challenges, exemplified by the different ways in which third generation (3G) licences were sold in the UK, France, Germany, Sweden and the USA [1]. Meanwhile there have been vast societal changes in terms of production and consumption, largely embedded in cross-national processes of globalisation. Political influences on design have been accompanied by huge social changes, such as the development of travel and the increasing car culture during the period of the mobile’s early development.

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2. Invention and adoption

In the UK the first land mobile services were introduced in the 1940s and commercial mobile telephony began in the USA in 1947 when AT&T began operating a ‘highway service’ offering a radio-telephone service between New York and Boston. In the mid 1950s the first telephone-equipped cars took to the road in Stockholm, the first users being a doctor-on-call and a bank-on-wheels. The apparatus consisted of a receiver, a transmitter and a logic unit mounted in the boot of the car, with the dial and handset fixed to a board hanging over the back of the front seat. With all the functions of an ordinary telephone, the car telephone was powered by the car battery. Rumour has it that the equipment devoured so much power that it was only possible to make two calls — the second one to ask the garage to send a breakdown truck to tow the car with its flat battery! These first car-phones were too heavy, cumbersome, and expensive to use for more than a handful of subscribers and it was not until the mid 1960s that new equipment using transistors were brought on to the market. Weighing a lot less and drawing less power, mobile telephones now left plenty of room in the boot but were still the size of a large briefcase and still required a car to move them around (Fig 1).

In the USA, in 1977, the Federal Communications Commission (FCC) authorised AT&T Bell Laboratories to install the first cellular telephone system. AT&T constructed and operated a prototype cellular analogue system and a year later, public trials of the new system were started. The FCC were convinced that cellular radio was practical but the sheer size of America presented problems that were not to be encountered elsewhere. Hence, although the first working examples of cellular telephony emerged in America, the Nordic countries of Denmark, Norway and Sweden and also Finland were soon to overtake their lead. In 1969 the Nordic Mobile Telephone group (NMT) had been set up to develop a cellular telephone system and by 1981, in Sweden, there were 20,000 mobile telephone users — higher than anywhere else in Europe. Cell-phones became standard kit for truckers and construction workers and by 1987 some were being sold for private use. Spain, Austria, the Netherlands and Belgium were quick to follow suit and order NMT services while Germany, France, Italy and Britain decided to design their own systems.

In 1979, the first commercial cellular telephone system began operation in Tokyo and by the mid-1980s there was a significant expansion of services offered to the general public that rapidly attracted large numbers of subscribers wherever services were available. In the UK, two companies were granted operating licences; Telecom Securicor Cellular Radio Limited (Cellnet) and Vodaphone. In January 1985, both companies launched national networks based on analogue technology and customers were able to avail themselves of the service using a mobile telephone the size of a brick (Fig 2).

In the late 1980s there was a move to develop standards for a second generation (2G) of mobile telecommunications and digital technology; the global system for mobile telecommunications (GSM) was introduced throughout Europe in order to provide a seamless service for subscribers. Analogue technology was phased out in the UK in 2001 and digital technology (GSM) is now the operating system for 340 networks in 137 countries. Although Europe is the dominant user of GSM, it has also been accepted in other areas such as the Asia Pacific region.

Digital networks and an increase in the number of service providers to the market in the early 1990s served to further increase the number of subscribers and consumer popularity rose immensely. In 2000, 50% of the UK population owned a mobile and in 2001 almost 50% of British children aged between seven and sixteen had one. Today at least 65% of households in the UK have access to a mobile and there are approximately 47 million mobile telephones in the UK [4]. It is estimated that during the next five years the percentage of calls made from mobile telephones will increase by 25% and user numbers are expected to rise to fifty million [4].