# The Mobile Phone as a Cultural Product: a design history comparing products in Japan and the UK

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# Foreword

My interest in Japanese design, and in mobile phones in particular, stems from the three and a half years I spent in Japan, at the beginning of which the mobile phone was establishing itself as a key lifestyle product. I first lived in Japan as an exchange student between 2000 and 2002, and subsequently spent a further eighteen months working for a Japanese charity from 2003-2004. In the years between 2000 and 2004, both Japanese and British societies were experiencing rapid technological development, key dimensions of which were the internet and the mobile phone. The speed of development resulted in a number of social phenomena that manifested themselves differently in the two countries. At the time, I was travelling frequently between the Japan and the UK, and was able to gauge the mobile phone markets. It was evident that the British were adopting technologies quite differently to the Japanese, who were several years more advanced in this arena, but several years behind Britain in terms of social indicators such as the treatment of women and ethnic minorities.

Japan has been the subject of a great deal of academic and journalistic enquiry, of varying degrees of rigour. Although the language alone presents a significant barrier for a non-native Japanese speaker, it is the combination of a complex language with an awe-inspiring array of cultural nuances that are prone to baffle the outside observer and prevent them from fully appreciating the true meaning of Japanese behaviour. Learning Japanese, as with any other language, requires commitment and dedication, and in order to learn a language in a natural colloquial context, it also requires complete immersion in the culture. In my experience, this part of the experience is particularly difficult, as it is necessary to put aside one's home culture. This also means ignoring many "common sense" rules that are understood by those from a similar cultural background. To a native English speaker from a historically dominant culture, these cultural norms are relatively well understood by people across the globe, due in part to their exposure to anglophone mass media, and in part also to the legacy of the British Empire. Immersion in Japanese culture necessarily means that one has few cultural reference points in common, and even has to adapt one's body language to a more Japanese style in order to make oneself understood. This process is long and

can be stressful at times, but it is also highly rewarding. It is only by learning the language fluently, that one is able to fully appreciate the Japanese culture and to understand the subtleties that differentiate regions and age groups.

The final eighteen months I spent in Japan were the most fascinating, at the time I was working for a Japanese charity in an office in the south-western city of Fukuoka, and I was their first non-Japanese employee. Negotiating my own work permit and welfare package with the Japanese authorities allowed me to experience bureaucracy first hand, and searching for accommodation, revealed the natural conservatism of Japanese estate agents and landlords unaccustomed to dealing with foreigners. In an all Japanese working environment, I was able to observe the behaviour of my colleagues and our corporate partners in a natural environment. Although, at the time I was not conducting research, these observations, made as a fluent Japanese speaker, have provided me with a basis upon which to assess the value of others' research on Japan.

In comparing Britain and Japan, two island nations with historically difficult relationships with their surrounding countries and with continental alliances, with comparable percentages of urban population and high population density, it is possible to screen out several factors that could affect the social and economic impacts of the mobile phone. However, the differences between these two countries are also marked, perhaps the most significant of these being, demographic. Britain has a long history of both immigration and emigration, and therefore has a far more ethnically diverse population than Japan. Movement of people in and out of Britain is constant, due to its proximity to Europe, its labour laws as part of the European Union, as a destination for tourists and for students from all over the world studying the English language and at British schools and universities as well as a multitude of business visitors, who may come several times a year. The hub like role played by Britain, and in particular London, cannot be said to apply to Japan which, despite highly developed transport links, plays host to few non-Japanese visitors (Japan National Tourist Association, 2007).[1] The reasons for this will become clear as Japan's design history is scrutinised.

[1] 3.9 million people visited Japan in the first 6 months of 2007 compared to 14 million visitors to the UK.

# Abstract

The mobile phone is among the most significant technological developments of the late 20th Century. Mobile communications devices have changed the way we interact with others and the world around us. Furthermore, mobile phones and other communications devices, such as Blackberries and other smart phones, have had a powerful influence upon lifestyle and the way in which people organise their time. This thesis examines the differences between the British and Japanese mobile phone markets. It focuses on the ways in which the industries driving mobile phone technologies in Japan are different from those in other developed countries, and illustrates the origins of functions and design features that first appeared in Japan. For the purposes of this thesis, Britain has been chosen as an example of a Western developed countries.

Following an examination of the available literature, the social, economic, political and design histories of Japan are outlined, and the links between them explained. This is followed by a detailed history of the mobile phone, focusing on Japan and the United Kingdom. As the mobile phone has become ever more ubiquitous, a number of related social phenomena have been observed. This thesis will address mobile phone-related social phenomena in Japan and Britain, which will be introduced and explained in the context of their respective societies. It is at this point the thesis focuses on the significance of design. Introducing the different layers of product, user interface, marketing and network design required to create the multimedia mobile devices used in the late 2000s. In places, the term ‘mobile communications’ technologies rather than ‘mobile phones’ is used to illustrate the likely short life-span of the mobile phone in its current form. In the developed world, where multimedia devices have become the norm, mobile phones are, arguably, already on the brink of extinction. It is now difficult for the consumer to purchase a product that is designed simply to make and receive calls. The future of telecommunications design is discussed referring to developments cited in preceding chapters.

# Contents

# List of Illustrations, Tables and Graphs

# Preface

In the past century, technological advances have immeasurably changed the way we live. Without the development of high-speed computer processors, many other products and services, including transport, pharmaceuticals and entertainment, would be far less advanced than they currently are. The global economy relies heavily on computers, which connects accounts and funds of all sizes and allows workers and tourists to travel seamlessly throughout the developed world. International cooperation towards standardisation facilitates a positive end user experience, in the transfer of money, the use of computing equipment, and the ability to communicate across national borders. Japan and Britain, both economically developed countries, have seen great benefits from the high-tech revolution, but have taken different routes towards building infrastructure and capacity in the technologies they have chosen to pursue. The results of these differences, will continue to emerge as the computing age matures, and will no doubt be the subject of much scrutiny. As developing economies attempt to catch up, they will have information from pioneers to inform their technology choices, and should therefore be able to make positive differences to their economies. In a globalised world, it is imperative that the wider international impact of national level actions is not forgotten. Although primarily concentrating on Japan and the United Kingdom, this thesis will also cover significant products and services from other countries, if deemed key to mobile phone development.

Japan's rapid economic development seen during the latter half of the 20th century, has been mirrored in South Korea and Taiwan. Many other Asian economies, most prominently China, are growing rapidly and developing at an unprecedented pace. Japanese industry has chosen to take a cautious approach to China's emergence as a manufacturing powerhouse, historical tensions are not easily forgotten, and there is still a great deal of mistrust between the two countries (Emmott, 2009). Although Japanese manufacturers have embraced China and other parts of South East Asia for their cheap labour, they tend to stick to low importance parts. Despite the high costs involved, Japanese companies largely prefer to manufacture their high-tech and intellectual property

protected goods domestically. Many companies also have a policy of China plus one, usually a South-East Asian country, ensuring a spread of assets, should any political problems emerge (Fujita & Hamaguchi, 2006).

Britain is very different to Japan, politically, economically and socially. However, the past half century has been a time of immense change in British society. The past quarter century in particular, has seen enormous leaps in technologies, the emergence of which created a whole new legislative landscape. Margaret Thatcher's policies facilitated the restructuring of many industries, including manufacturing and mining. The privatisation of utilities, such as electricity, water, and, particularly relevant to this thesis, telecommunications, along with the weakening of trade union powers that occurred throughout the 1980s, has resulted in a, painful shift from a manufacturing, to a service based economy. The downside to this was widening income inequality leading to the polarisation of haves and have-nots (Rose, 2008, pp. 688-689).

Technology has influenced British society as well as the economy on many different levels. As a learning tool, the internet is invaluable to educational stakeholders including schools, universities, and the eventual beneficiaries of the education system, industry. Though, to those who are made redundant due to outsourcing to countries such as India, with cheaper labour, the benefits of technologically enabled mobility, must seem less obvious. The movement of capital, though not a new concept, is certainly happening at a faster pace than it did before telecommunications deregulation and the infrastructural investment that occurred during the 1990s. All of this has had a profound effect upon British lives. However, for the purpose of this study, it is the socioeconomic effect of the mobile phone that will be examined.[2]

The history of the mobile phone is of interest on many levels. Firstly, on a purely technological basis, the modern mobile phone is an impressive product, and one of the most ubiquitous pieces of visual evidence we have of the rapid technological development that has taken place in the past

[2] See Chapter 4 for more details on social change

quarter century. On a social level, the mobile phone has changed the way we communicate and live our lives. By 2010 many consumers carried a high-tech communication device with the processing power of a late-1990s desktop computer; on it are details of friends, families and business contacts as well as visual and musical information about owners' tastes and lifestyles. Finally the mobile phone has had a huge influence on the economy, with telecommunications firms springing up throughout the world.

Looking at the mobile phone from a design perspective is to take into account, not only the physical appearance of the product itself, but also to examine the design of the interfaces and services that allow it to work. The mobile telecommunications industry in Japan, provides a vivid example of products and services integrated almost seamlessly. On the other hand, in Britain and much of Europe, the same industry seems to have been not so much designed, as come together accidentally, resulting in far weaker integration of products and services, but with a greater opportunity for small to medium enterprises (SMEs) to enter the relatively weakly regulated British mobile market, providing solutions to consumers usability problems. Upon investigation, there are certainly numerous unconnected companies offering a multitude of mobile products and services. Comparing British and Japanese mobile phones provide insights into the history and culture of two very different, yet in certain respects, surprisingly similar, island nations.

# Candidate's Declaration

I declare that the research contained in this thesis, unless otherwise formally indicated within the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree and does not incorporate any material already submitted for a degree.

Signed 

Date 23/05/2011

# Hypothesis

The mobile phone package is designed differently for the Japanese market (timescale from design to market, demands from networks, consumer needs, technological capabilities of networks), to mobile phones that are sold in Britain. This alters the way the phones are used, and changes their social significance. Mobile phones sold in the UK are similar, if not identical, to those sold throughout Europe, and they are packaged in similar ways. Since usage is different in Japan, so is the significance of the product. These differences came about for social, cultural and economic reasons, but it would appear that the Japanese model of the mobile phone as a complete package has more advanced design, in terms of aesthetics, user interface, quality of materials and the services they support, to the UK version of the same product.

# Research questions

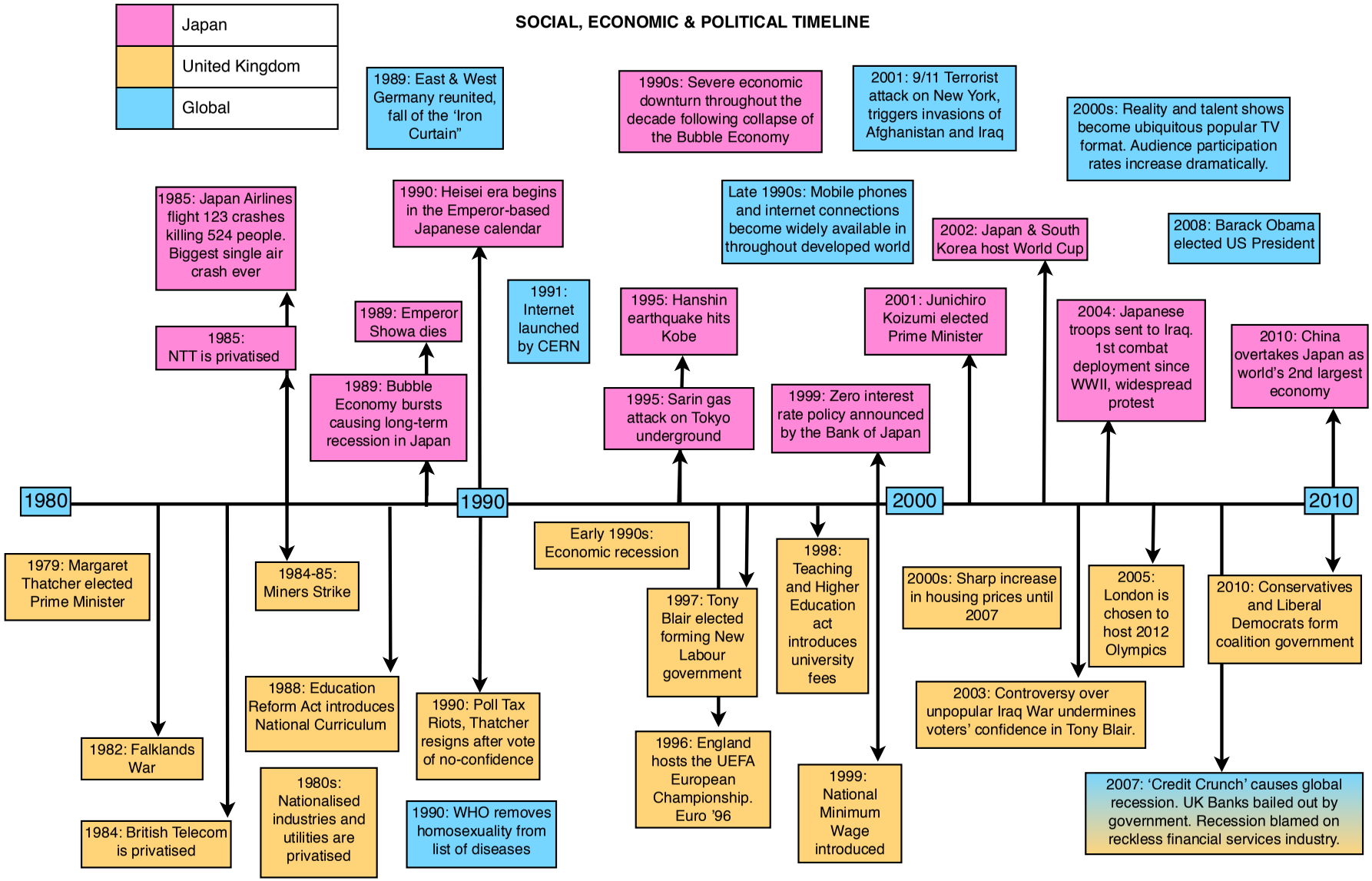
In order to investigate the relative merits of Japanese mobile phones and those in the UK, the following three research questions were devised:

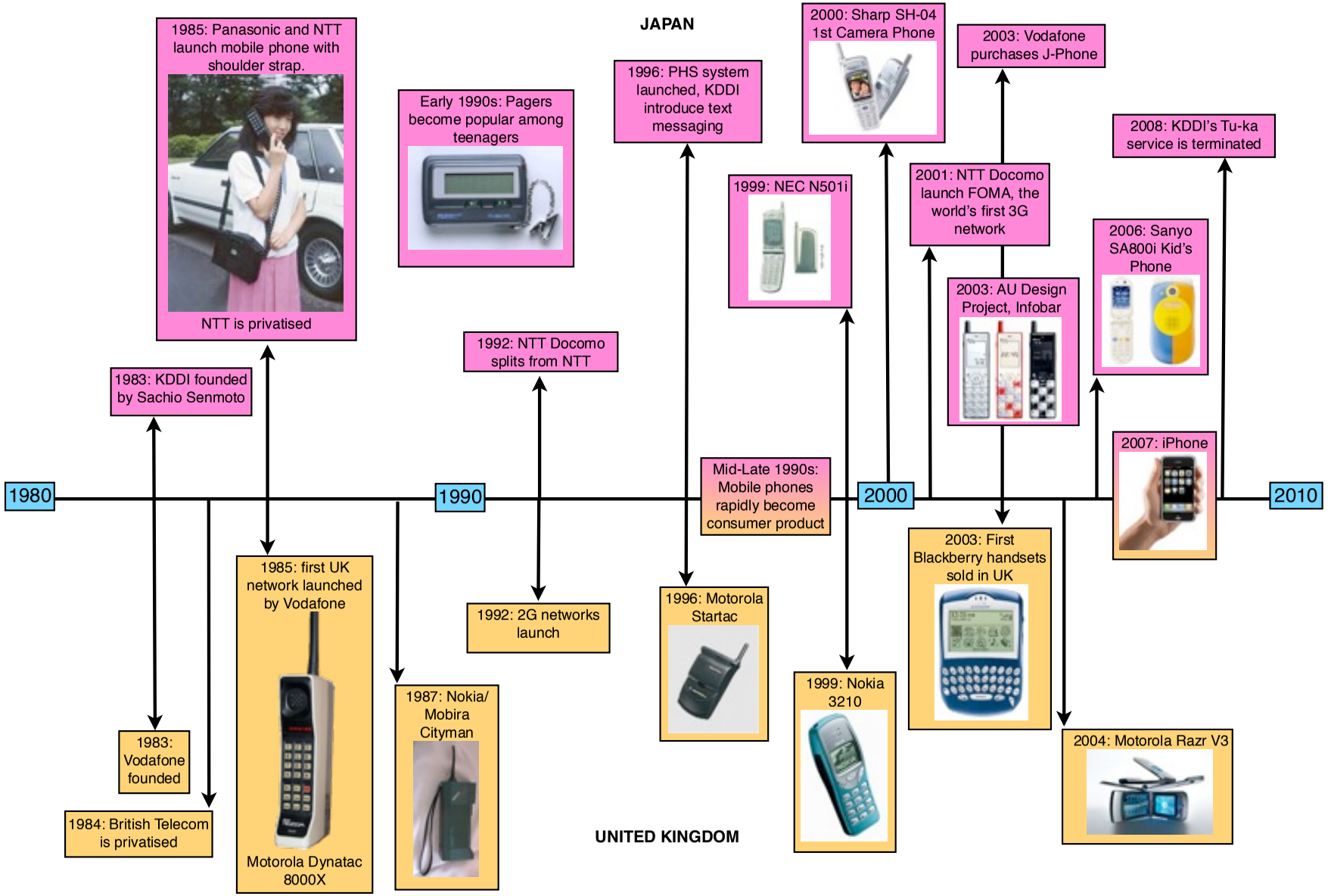
RQ1. What differentiates Japanese mobile phones from those consumed in other developed economies, and the UK in particular?

RQ2. How did these differences come about?

RQ3. What is significant about these differences from a design perspective?

## SOCIAL, ECONOMIC & POLITICAL TIMELINE




JAPAN
1985: Panasonic and NTT launch mobile phone with shoulder strap.
NTT is privatised
Early 1990s: Pagers become popular among teenagers
1996: PHS system launched, KDDI introduce text messaging
2000: Sharp SH-04 1st Camera Phone
2003: Vodafone purchases J-Phone
2008: KDDI's Tu-ka service is terminated
1999: NEC N501i
2001: NTT Docomo launch FOMA, the world's first 3G network
2006: Sanyo SA800i Kid's Phone
2003: AU Design Project, Infobar
1983: KDDI founded by Sachio Senmoto
1992: NTT Docomo splits from NTT
2007: iPhone
1980
1990
Mid-Late 1990s: Mobile phones rapidly become consumer product
2000
2010
2003: First Blackberry handsets sold in UK
1985: first UK network launched by Vodafone
Motorola Dynatac 8000X
1992: 2G networks launch
1996: Motorola Startac
1987: Nokia/ Mobira Cityman
1999: Nokia 3210
2004: Motorola Razr V3
1983: Vodafone founded
1984: British Telecom is privatised
UNITED KINGDOM

# Contribution to Knowledge

As discussed in the Preface, the mobile phone has had a huge impact on the lives of consumers. According to researchers such as Kate Fox (2004), Jon Agar (2003) and Jeffery Funk (2004), this single product has altered communication norms, and even changed our perception of time. For a consumer product with such a short history, the mobile phone has attracted a huge amount of attention, largely from the media, but also from academia. However, given the unprecedented speed of uptake worldwide, and the multitude of uses for mobile phone handsets, this attention is not disproportionate to it's importance.

Due to the size of the global mobile phone market, academic research has been unable to keep up with the rapid evolution of products. Through analysing corporate data, it is possible to get an idea of the amount of money spent on or generated by mobile phones. The mobile phone business has been analysed by Steinbeck (2005) and Christensen (2003) among others, and their ideas are certainly interesting and significant. The commercial success of a product is important to its impact, it is also something that can be easily measured, but this sort of information is only part of the story. It is more difficult to find information on the mobile phone's influence on people's lives. Researchers including Ling (2004), Fox (2004) and Ito (2005), have written about the social significance of the mobile phone, but their research provides snapshots of individual countries; Norway, Britain and Japan respectively. A comparison of the influences of the mobile phone on two very different cultures has not yet been attempted. Nor has there been an analysis of the mobile phone's influence on society from a design perspective. Combining information from historical, political, social and design perspectives, this thesis will bring a multidisciplinary approach to understanding the cultural significance of the mobile phone. By paying less attention to disciplinary boundaries and more to research content, this thesis will provide a thorough analysis of the cultural product. Design provides an analytical framework within which to position the research.

This thesis aims to identify the specific cultural differences between mobile phone use in Japan

and the UK. This research also provides a comprehensive insight into the differences and similarities between the cultures of the UK and Japan in terms of the evolution of a single product, showing how changes in design can fundamentally alter the way a product is used, even if the basic functions of these products appear identical. Despite attracting a great deal of attention, as a product with a relatively short history, the mobile phone is yet to be comprehensively studied. Much of the research that has been carried out does not give a specific cultural context to the findings. Here the mobile phone will be examined within the cultural contexts of contemporary Britain and Japan. The research has a cultural bias assuming greater knowledge of British culture than of Japanese. Britain has been chosen to represent Western countries, because this is the author's base, meaning that information is relatively easy to obtain. Another reason being, that from a British mobile phone handsets are almost identical to products available in North America and throughout Europe.

# Methodology

The aim was to collect and analyse literature and data from a number of different sources, in order to get a more rounded picture of the cultural significance of the mobile phone. The methodology evolved, from the idea that a series of key words would bring up information from a variety of sources, and these sources were all initially treated as being valid. Some of this information was found to be unreliable, and was therefore jettisoned. Library-based searches turned up a wealth of information on Japan and on design. Internet searches allowed for rapid scanning of a greater range of documents, displaying the most relevant pages instantly. The disadvantage of the internet search as a method, is that it prohibits the reader from stumbling upon interesting information by chance. However, the speed and efficiency of the internet means that several more texts can be scanned in a shorter space of time, decreasing the chance that something important will be missed.

This extensive review of literature, which forms the body of the research, proved to be the most appropriate research methodology for this particular thesis. Additional information, from interviews, photographs and marketing materials, were gathered during a field trip to Japan. This material was essential in order to understand the mobile phone from a Japanese perspective. The stages that have gone into the research and writing of this thesis are as follows:

**1. Observation**

Having spent a number of years living in and studying Japan the author began this investigation with a variety of ideas and assumptions based on personal experience. The observations and experiences of living, working and studying in Japan provided a comprehensive understanding of Japanese culture, against which, comparisons with the United Kingdom, where the author has lived for the majority of her life, could be made.

With this type of observation, it is important to acknowledge that there are differences between being a native, or insider, in a culture, and being an outsider. The author's understanding of Japan was formed as an adult, whilst learning Japanese as a second language. The Japanese language is particularly complicated for Europeans (compared to Korean or Chinese learners) to learn because, due to cultural differences, much of it does not translate neatly. With Japan a further complication arises from the differences in physical appearance between the author and those being observed. As will come to be understood through reading this thesis, Japan remains relatively ethnically homogenous, in that there are few immigrants, and very few from outside East Asia. It should therefore be noted that the author of this thesis is ethnically white European.

The observations made by the author therefore necessarily have a Western cultural bias, encompassing North-Western Europe, English speaking North America, Australia and New Zealand. Objectivity is a commonly stated goal for, among others, sociologists, political scientists and anthropologists, attempting to validate their work as a social science. However, in this author's experience, objectivity can and should be pursued, but will never be fully realised due to the complex nature of human culture. Therefore, for the purposes of this thesis, this author wishes to acknowledge that there is an unavoidable Western bias in her writing, but that through the process of cultural immersion  in Japan over the course of three and a half years, and due to a social science academic background, this bias will be significantly less pronounced than it would be in less experienced researchers. The author's claim to possess a thorough understanding of Japanese language and culture is based on the following credentials:

- Three and a half years living in Japan, 18 months of this time was spent living with Japanese families, one year with Japanese students in a university residence with communal facilities, the remaining year was spent living alone in a small studio apartment, as is common for young Japanese living away from the family home.
- Two and a half years working in Japan, one of these as an English teacher working in the private and public sectors, and the remainder as the only non-native worker for a Japanese charity.

Through my work I was able to access the Japanese education system, observing lessons at kindergarten and elementary school level.

- One year at a Japanese university. During this time I gained an insight into the higher education system and came to understand much about young Japanese people aged between 18 and 25.

**2. Idea Formation and Information Gathering**

The differences between Japan and the UK provided the fundamental framework for the design of research questions. The author was particularly interested in consumer electronics, and how many of these technologies have taken on cultural meanings far beyond their basic functionality. Since the products that seem to convey the most meaning, in terms of an emotional attachment, appeared to be entertainment devices, this effectively narrowed the field down to a few products. In the early stages of the research, much time was spent reviewing literature on entertainment products such as games consoles, televisions, and music systems. The decision to concentrate solely on the mobile phone was made for a variety of reasons. The first of three main reasons is, that at the time of embarking upon research and writing, literature on mobile phones was scarce, leaving many gaps in knowledge to be filled. The other major reason is because the mobile phone, as well as being a communication tool, has also become an entertainment device able to provide games, videos and music. Finally, the mobile phone was chosen as the subject of this thesis because its social significance as a somewhat controversial technology, especially when it was first introduced. Once the subject of the thesis was decided, it was then possible to concentrate information gathering around a single type of product.

**3. Literature Review**

In order to test these ideas and hypotheses a range of literature, both formal and informal, was gathered and analysed. The review of historical, economic, social and business literature on Japan spanned several decades, with the largest body of work coming from the 1970s through to the 2000s. With the exception of newspaper articles, literature specifically about mobile phones has almost all been written after the turn of the 21st century. Due to the logistical problems of focusing

on a distant country, the internet enabled access to most of the Japanese language literature. A comprehensive review of books and articles specifically about the mobile phone, helped to determine how much information was available on the subject. Due to a lack of academic writing on the subject, one valuable source of information was marketing materials produced by mobile phone networks, manufacturers and related services.[3] Analysis of these materials helped the author gain an understanding of the design and intended uses of mobile phones, and the communication methods used to sell them. In order to gain an understanding of the product's different social meanings in both Britain and Japan, this was followed by an analysis of the historical, political, social and economic factors leading to the development of the mobile phone. Writing on Japan, by both Western and Japanese authors, particularly historians, economists and business researchers, is plentiful. It was necessary to read a large body of literature on Japan, to understand historical and current ideas, and compare them to the author's own understanding of Japanese culture.

**4. Other Sources of Information**

In Britain, interviews with executives from Orange, Sony Ericsson and Vertu, a British company producing premium branded exclusive mobile phones from durable materials, provided an insight into the mobile phone industry in the United Kingdom.[4] This, along with two summers of working as a Project Leader for RockCorps, a production company organising concerts for which tickets can only be obtained by volunteering, and which is sponsored by both Orange and Sony Ericsson, gave the author an insight into the marketing strategies used by mobile phone networks and manufacturers to differentiate their brand.

In Japan, the author was able to gain access to the mobile phone manufacturers Fujitsu, and Mitsubishi, software company Symbian, and to the headquarters of network provider NTT Docomo. These visits presented opportunities to interview designers and executives, providing evidence of the state of the industry. Despite being granted access to some of Japan's most important

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[3] The value of information obtained from marketing material will be discussed in Chapters 3 and 5

[4] The content and significance of these interviews will be discussed in Chapter 3.

corporations, the information obtained from these interviews cannot be said to be definitive. Businesses will only present researchers with the side of their company they wish to make public. In the competitive high-tech industry, innovations are closely guarded. The content of the interviews with industry designers and executives, has therefore not been used to draw any irrefutable conclusions. Whilst in Japan, it was also possible to visit consumer electronics retailers and gather marketing literature, in order to ascertain consumer profiles at which the industry was aiming mobile phone products and services. The contemporary nature of much of the subject matter, is such that a large proportion of it is on the internet. Though there can be validity and reliability issues with internet materials, the materials used for this thesis have been cross-checked against other sources or were sourced from online journals, in order to minimize the risk of unreliable data.

# Chapter 1: Literature Review

To understand the impact of mobile phone design in Japan, it is essential to investigate a number of factors influencing Japanese economic and social development. This investigation will establish the key factors, whether social, political or economic, that have facilitated the development of the mobile phone, as well as the history of mobile phone-related design considerations and the way in which design and technological development are interrelated, creating the product used today both in Japan and throughout the world. Due to its broad scope in terms of background information, this thesis requires a survey of literature from a wide range of sources: historical data, marketing materials, social research and material on design. The topic is multidisciplinary and therefore encompasses the work of, among others, historians, economists, political scientists, sociologists and anthropologists. Design history is also important, but upon investigation, the author has found work on Japan to be uneven in quality and depth of coverage. The aim of this thesis is therefore, to fill some of the gaps in this area, especially in relation to the mobile phone and related communications technologies.

Referring back to the research questions outlined in the Introduction, RQ1[5] can be answered by a structured analysis of corporate literature and information in the popular press, as well as through a review of academic literature produced since mobile phones became a consumer product. In order to answer RQ2[6] with any degree of authority, it is necessary to establish important historical data, and how they are interpreted by the Japanese and the West. Similarly, in relation to RQ3[7] attention will be focused on literature that specifically considers design and design history. This thesis brings together literature from politics, economics, sociology and design history, to provide a unique perspective on Japan's mobile phone industry. As outlined in the Methodology, analysis of

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[5] What differentiates Japanese mobile phones from those consumed in other developed economies, in this case represented by the UK market?

[6] How did the differences between British and Japanese mobile phones differences come about?

[7] What is significant about the differences between British and Japanese mobile phones from a design perspective?

Japanese culture based on three years of first-hand experience of complete immersion, gives the author unrivaled understanding of the country and its people.

Existing literature will be reviewed in the following categories[8]:

1. Cultural literature about the mobile phone
2. Design and design history
3. Historical, social and cultural literature
4. Economic data and analysis
5. Corporate literature and marketing materials
6. Other relevant information including film and audio analysis

**Mobile Phones**

The technology market in Japan has long been of interest to the foreign, including the British, media. Partly because Japan's government and high-tech hardware manufacturers invest heavily in research and development, Japanese companies have produced many high-profile products, some of which, including Sony's *Walkman* were disruptive technologies that have become global icons. Japanese mobile phones, once rumored to be years ahead of their equivalents in Europe and the United States, provided a familiar and constantly changing subject for technology commentators ("Japan phone giants forge alliance," 2001, August 21; Wall, 2007, June 21; Wray, 2006, March 4). Cultural literature on mobile phones, like the product itself, is a recent phenomenon, and necessarily concentrated after the turn of the century. Jon Agar (2003) provides a clear and concise history of the mobile phone. A science and computing historian, he combines technical information with cultural context, dismantling the phone into component parts, and investigating the developments leading up to the handset he was using at the time of writing. Though the style is relatively informal, there is a great deal of information contained in this text, providing ideas for further investigation, including the influence of mobile phones as both a facilitator and target of crime, and the reasons behind the popularity of text messaging and mobile

[8] N.B. This is not the exact order of this Literature Review

e-mail. For a more in-depth investigation into the mobile phone, Steinbock's *The Mobile Revolution* (2005), provides analysis of mobile phone development throughout the world. His work on Japan is of value because it focuses on major technological developments by NTT Docomo, including *i-mode*, colour screens and mobile cameras, and analyses Japanese consumers from the perspective of networks and manufacturers. In the case of the mobile camera, Steinbock correctly credits J-Phone with being the first company to launch the camera phone, but further information on Japanese networks other than those of NTT Docomo is scant. *The Mobile Revolution* is comprehensive and thorough in its coverage of mobile phone products and services, and is therefore important to this thesis. Steinbock's background is in business, so he does not analyse the mobile phone from a sociological perspective. However, his book does cover consumption phenomena, which can be interpreted using texts about Japanese consumer culture such as *Personal, Portable, Pedestrian* (Ito, Okabe, & Matsuda, 2005), which analyses the consumption and use of mobile phone products and services.

*Personal, Portable, Pedestrian,* (2005) along with Jeffery Funk's, *Mobile Disruption* (2004), are key to this thesis, as they provide some answers to the research questions. Funk, a professor at Hitotsubashi University in Tokyo, offers an analysis of the products and services that have been embraced by Japanese consumers. Many of these, Funk claims, are disruptive technologies, products that offer a lower priced alternative to higher quality products with greater functionality that are adopted by the mass market (Funk, 2004). Ito et al. (2005) present a more sociological version of the impact of mobile phones on Japan. The core argument running through this essay collection, is that the market is primarily driven by young people. Though this is largely true, a broadening of product targeting focus can be observed since the introduction in the early 2000s of *Rakuraku* (meaning easy easy) phones which are aimed at the elderly consumer. They are therefore designed to be both simple to use, and in some cases, as close to the house phone as possible in the way they operate. Japanese networks and manufacturers have been relatively quick to understand the value of designing specifically for the older consumer. *Rakuraku* phones have proved popular amongst their target market, they could also be described as a disruptive, but less for their technological prowess as their simplicity. Other markets that Japanese manufacturers

have begun to specifically target include businessmen and children, see Chapter 3 for more details.

Matt Haig (2003, pp. 197-200) provides an important lesson on branding in his analysis of WAP as a failed brand. He argues that the marketing of WAP as a mobile version of the internet, gave consumers excessively high expectations, and these could not be met by the technology. In comparison to NTT Docomo's highly successful *i-mode* service, as described by Steinbock (2005, p. 3), Ling (2004, p. 9) and Funk (2004, p. 13), WAP was not a significantly inferior technology, as an open international standard anyone could write WAP content, and it remains the coding language for the mobile internet in much of the world outside of Japan. However, despite the similarities between the Japanese and British mobile internet services, when WAP was introduced in 1999, British networks were not able to handle rapid delivery of content, and handsets still had small two-tone screens which could not display the content in a satisfactory level of detail. WAP was not only a failure of marketing, but also a failure of design, however Haig does not go into the design reasons for this, which need to be more thoroughly analysed. The history of the mobile internet in both Japan and the UK can be found in various texts, however they fail to examine design aspects of the service and how they interact with the user interface. This will be investigated in Chapter 5.

Literature relating to both Japanese society and mobile phone phenomena remains scarce. However *Personal, Portable, Pedestrian* (Ito et al., 2005) provides an analysis of the mobile phone as an agent of social change. Importantly, all of the essays in this collection have been authored by Japanese commentators, though some of them are not currently based in Japan. The text is largely descriptive, with detailed translation and explanation of Japanese words and social phenomena. On a more worldwide basis, the social impact of the mobile phone has been investigated by Ling (2004), whose work covers several countries, contrasting Ito et al. (2005) who concentrate on Japanese phenomena. Ito et al. provide valuable insights into Japanese society and how it has adapted to the mobile phone and ubiquitous technology. Qualitative research methods, such as those used in both of these texts, are problematic in that they are only able to

investigate a few subjects. This means that, although their data is in-depth, the sample size is too small to be representative. Using quantitative methods, it is possible to collect a large quantity of data, but this is limited by the quality of the investigation design. Qualitative data allows for a more flexible approach, but is time consuming, limiting the number of participants. Both Ling and Ito et al. have taken a mixed approach to their investigations, using both statistics and qualitative data and encompassing as much research as possible into their books. Ling has chosen to investigate conventional topics including mobile phone adoption, youth usage patterns and safety, whereas Ito et al. have included essays on more abstract topics such as “Imagining of Keitai” and “Selective Soildarity”. Though less tangible, this text provides useful information about the specificities of mobile use in Japan, covering issues such as gender and the social conditions under which mobile phones have proliferated.

Satinder Gill (2000, pp. 83-84), a computing in society academic who has worked at NTT in Japan, brings together the technological and cultural, recognising the unique challenges faced by Japan in shifting towards a digital society. Gill’s analysis of the spheres of business, education and government are relevant to consumer issues as industrial output affects consumers directly. One hypothesis outlined in this chapter, is that the Japanese may have more trouble in dealing with computer-mediated space than Westerners. This is explained as a problem associated with a preference for face-to-face communication, which is well documented as a characteristic of Japanese society (Boscaro, Gatti, & Raveri, 1990, p. 98). Gill’s main contribution, is to the debate on Japanese education, highlighting the lack of recognition for Japanese language academic output. This, claims Gill, is due to its relatively small global audience, and the underdevelopment of Japanese PhD. programs, forcing eligible candidates to seek their education abroad.

Matsuura’s paper on the Japanese language (1999) reports that Japanese society is changing as a result of communication technologies. This can be interpreted in terms of the fact that, to outsiders, it would appear to be a highly formalised culture, with strict linguistic codes, but in comparison to the way Japan was immediately after the Second World War there has been a significant shift away from traditional Japanese seniority and status based hierarchy with their complex linguistic

and behavioral rituals, and towards a less formal society, similar to contemporary Western societies such as Britain and the United States. According to Matsuura, e-mail and the mobile phone have contributed to this shift, as the differences between spoken and written language are eroded. That Japanese culture is changing as a result of communications technologies is undeniable, given the weight of evidence showing culture to be a necessarily fluid concept which alters somewhat according to the political, economic or social climate of the times.

**Design and Design History**

There is a body of design literature specifically covering Japan. However, as part of this thesis' comparison with the UK, and to put the information into context, it is necessary to analyse some general texts which cover the basics of design. One book that covers many of the issues necessary for the successful design of the mobile phone, is Donald Norman's *The Design of Everyday Things* (2008). Originally published in 1988 (as *The Psychology of Everyday Things*) prior to the age of digital technology, Norman's grasp of psychology, computing and design, enable him to describe timeless design dilemmas which affect mobile phones as much as any other product. Despite containing little information about the history of design, Norman's book is an invaluable link between the designer and the user, emphasizing the importance of usability above aesthetics, and pointing the way towards achieving both of these aims. Norman's contribution to design theory was added to in his book *Emotional Design* (2004), where he acknowledges that usability is just one way in which consumers judge the quality of a design. Here he splits design into three constituents; visceral, reflective and behavioral. Behavioral design comes closest to the concept of usability. Visceral design is the aesthetic aspect of product, which can sometimes displace the product's usability. The importance of marketing is acknowledged in the reflective aspect of design whereby consumers judge products on their brand value and how that product will make them feel. Norman's ideas are discussed more thoroughly in Chapter 5, where there is an investigation into the key factors designers should be taking into consideration when designing for British or Japanese mobile phone consumers.

Jonathan Woodham's work *20th Century Design* (1997, pp. 132-139) offers an international overview of design history. Covering the development of groundbreaking trends, key products and major designers, this book also features a timeline which enables the reader to instantly visualise the order in which important events occurred. The material on Japan outlines the concern from British industry when Japanese companies began to rival their quality, but were selling their products for lower prices. Though considerable expansion of this material is required in order to fulfill the criteria of this investigation, Woodham's work provides a number of starting points from which further investigation is possible. The period following the Second World War, will be covered in greater detail in Chapter 2, including information on politics, economics and design.

Further reading on Japanese design concepts reveals the inseparability of art and life, or at least of craft and culture. This is according to De Mente (2006, pp. 10-37) who introduces ideas of *wabi-sabi* (translated in this text as impermanence), *shibui* (elimination of the non-essential) and *heisei* (tranquility) to name but a few. De Mente asserts that these concepts can be found throughout Japanese culture and are identifiable in various art forms. Explanations for the historical significance is provided, and can be backed up to some extent by Juniper (2003, p. 30), who provides a more narrative account of the development of Japanese art forms, and who is willing to acknowledge the fact that many of these concepts are being eroded by globalisation and the materialistic lifestyle of most contemporary Japanese. Numerous references to *wabi-sabi can be found*. Crowley and Crowley (2001, pp. 2-6) explain the origin of the phrase, a slightly different interpretation to that of De Mente, in that rather than impermanence, *wabi* means wretched or miserable, and *sabi* meaning meaning weathered by age. However the meaning is altered in describing arts, where *wabi-sabi* means natural, unassuming and modest. This cannot be fully understood without also understanding the principles of Shintoism, whereby, according to Crowley and Crowley, the divine is present in all natural forms, living or otherwise, and all that is natural is of equal value. Meaning that, in effect, humans, trees and rocks all occupy the same place in the natural order. This helps to explain the Japanese affinity for the natural world, and for their preference for appreciating the aesthetic qualities of objects and materials in their unaltered form. Though this may seem curious to anyone who has visited urban Japan, where virtually all evidence

of nature has been eliminated and replaced with something artificial. This argues Shelton (1999, p. 159), is also cultural and a result of the interaction between the Japanese hostile geography and with the Buddhist preference for the temporary.

A number of texts have proven useful in gaining an understanding on thought on product design in relation to Japan. Press and Cooper's book *The Design Experience* (2003, pp. 13-14) provides evidence of design as being culture specific, influenced by environment, social structure and ideologies. They suggest that societies are heavily influenced by their physical environment, and that the creation of buildings and objects, spiritual beliefs and social hierarchies are all influenced by the availability of resources, terrain and local climate. In Japan's case, Press and Cooper suggest that a preference for miniature or portable products stems from the fact that Japan has very little habitable land, and a relatively large population. The origins of Japanese culture are further analysed in *A Comparison of Package Designs in Japan and Europe* (1979), a publication by the Package Design Association of Japan, where it is proposed that group culture stems from the necessity for cooperation in rice cultivation, compared to the relatively solitary pursuit of rearing animals. This analysis ties in with Renshaw's theory on scarce natural resources which is mentioned in Chapter 2.

The design of Japanese products and services has a wider effect on design throughout the world. Since Japanese firms began exporting electronics in the 1950s, Japan's reputation has changed enormously, politically, socially, economically and in terms of the products it manufactures. Product design is just one factor shaped by and shaping the world around us. Immediately after the Second World War, Japan was devastated and reliant on economic assistance from abroad, mainly the United States. According to Johnson (1995, p. 37), Japanese industry during the immediate postwar period was similar to the United States Military of that era, with companies focusing on, forward planning, seniority based pay scales and ensuring job security. Quality assurance was introduced during the US occupation to help Japanese products overcome their reputation for shoddiness. Japanese manufacturers are now among the world leaders in terms of quality control, and have a good reputation worldwide, particularly in the automotive industry. The history of the

design of Japanese products can be found in the Japanese Industrial Design Association's (JIDA) comprehensive guide *Nippon Purodacuto* (2006), which explains the vision behind many of the iconic products featured, but does not detail the sociopolitical background of either the companies or the products.

Design literature covering Japanese electronics is largely descriptive and lacks the depth necessary for a meaningful dissection of the meaning of the product beyond its impact upon the market. English language investigations of design history in Japan include work by Sparke (1987), Davey (2003) and Hiesinger & Fischer (1994, pp. 58-66), who have all chosen a similar range of products to represent Japan's design development, including the Sony TR-55 radio, made by the then Tokyo Telecommunications Engineering Corporation, which was seminal in that it was the first export, and the first product to bear the Sony name which the company subsequently adopted in 1958. However, in *Nippon Purodacto* (2006, pp. 35-37), although the TR-55 is mentioned as part of the 1955 industrial design output, it is the TR-610 three years later that is celebrated as a design classic. This may have much to do with the G Mark awards, an initiative celebrating good design, both domestic and internationally introduced by the Japanese Ministry of International Trade and Industry in 1957, which the Sony TR-610 was one of the early winners. One of the reasons for the approach taken by Sparke et al. is that they do not have access to Japanese literature. Literature by JIDA and other such professional organisations celebrate the designer, the design profession, and the product in their writing, failing to address any wider social, cultural, economic, or technological implications. In the author's experience, this is due to the underdevelopment of the social sciences in Japan.[9] *Nippon Purodakuto* (2006, pp. 130-131) also covers the development of the mobile phone, with the first NEC phone to be designed for using *imode*, the N501i, shows the development of what was to become the industry standard for mobile phone design. The sleek

[9] Social science education such as sociology, politics and anthropology is available, but focuses less on critical examination than it does in Britain. Brian McVeigh, a professor at the University of Arizona who has written much about Japanese tertiary education, covers these shortcomings in his book, Japan's Higher Education Myth (2002). McVeigh's analysis of Japanese education is mirrored by the author's own experiences as a student at a Japanese university. The Japanese education system will be covered in more depth later in this chapter.

NEC flip phones with their large screens and easy to navigate menus proved popular and spawned a multitude of copycat phone designs across the Japanese mobile industry.

Steinbock (2005) with his bias towards mobile phones developed in Europe and the United States, highlights the design process for the Motorola Dynatac, followed by the Startac, the original flip phone released in 1996. Cultural bias such as this is common in academic writing as it is almost impossible to extract oneself completely from the values of the cultural hegemony of our own society, nor is it easy to obtain a fully objective overview of the global output of, in this case, mobile phones. This does not detract from the value of Steinbock's or any other text, but it does require the reader to be aware of the cultural context of the author. For the purposes of this thesis, it is important to understand early mobile phone design as it was being developed, almost independently in Japan and the West. By comparing Steinbock's work, with that of technology investigators such as Gerard Fasol (1997-Present) point to parallel yet unrelated developments in both technology and design, without cooperation or shared resources between Japan, the United States and Scandinavia, who were the three major geographic players in the early development of the mobile phone.

The design of traditional land-line telephones proved highly influential in determining how mobiles would look. Academic writing about details of technology design is difficult to obtain, for example, it may not have been considered by many that buttons are a relatively recent development in telephone design, only appearing in the US in 1962 and in Japan in 1969 (DeRouchey, 2006). That this information was obtained from a blog on the history of technology, indicates that there are many gaps in knowledge regarding the design of mobile phones. Written information on the design of telecommunications technologies appears most frequently in literature on ergonomics and inclusive design, and is therefore presented from the perspective of improving usability. Further information can also be pieced together from a variety of sources, including the internet, trade brochures and product catalogues. Though this could prove to be less reliable than academic writing, it offers the opportunity to work within a relatively unexplored discipline. On the subject of ergonomics, Green and Jordan (1999, p. 222) remind the reader that design requires the essential

element of aesthetic appeal to the consumer. The aesthetic appeal of a product is critical in determining the commercial success of any design, and this factor is not necessarily linked to ease of use. Those products that achieve high levels of both aesthetics and usability, such as Apple's various product lines, have the potential to become popular consumer products (Ward, 2003, March 31; Weaser, 2007, October 18).[10] Green and Jordan point out that design should be a generative process, and not an evaluation of all that has come before it. This is relevant to Japanese design, which is well known for upgrading the existing, rather than innovating new product designs (Herbig & Palumbo, 1994). Constant improvement or *kaizen*, is a cultural phenomenon preserved through the apprenticeship system of traditional Japanese crafts including ceramics, sword making and calligraphy, whereby an apprentice would not be allowed to create any of his own work until he had perfected all of the techniques of his master (De Mente, 1987). Boye De Mente (2006, pp. 22-26) has written on a wide range of cultural phenomenon in Japan, and though not an expert on design, his book, *Elements of Japanese Design*, captures the concepts that underpin many of the unique aspects of Japanese culture still observable today. Further examples of ergonomics focused work on mobile phones include that of Keates and Clarkson (2003, p. 6), who evaluate the designers' dilemma of making the product smaller and more appealing to one group of consumers, whilst excluding others from its use. The mobile phone embodies an increasing variety of conflicting problems as the product embraces an ever increasing range of functions and the necessity to attempt to cater for a greater number of services offered by providers.

*The Mobile Connection* (Ling, 2004) discusses mobile phones and their influence upon societal change, but since the majority of Ling's research was conducted in Norway, it can only be used as a reference for the general trends associated with mobile ownership. Ling's findings, such as those surrounding social coordination and security, have been mirrored in research conducted in Britain (The_Carphone_Warehouse, 2006), and Japan (Habuchi, 2005), suggesting that consumers throughout the developed world have similar experiences of their mobile phone. A more relevant

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[10] Just a few of the many articles that praise Apple products for their aesthetic appeal and usability

insight is offered by Shin Dong Kim (2002), who writes about Korean social conventions which, have many similarities to those in Japan. The mobile phone has altered the way Koreans behave in public as well as the ways in which they communicate with each other, although this could also be said of the West. Japan and Korea both have highly formal communication conventions which are less prevalent in Western cultures. Detailed analysis of Japanese language and communication conventions can be found in the next chapter.

**Historical, Cultural and Social Literature**

An understanding of Japanese history will provide some answers to the questions about the origin of differences between Japanese and Western mobile phone design, usage, and consumption from both business and social perspectives. Both will be covered, with the emphasis on establishing social norms which form the basis of all other national institutions. In order to establish the roots of contemporary Japanese society, it is necessary to look into Japan's past, before the periods of rapid economic growth and subsequent stagnation of the past fifty years. Although the latter half of the twentieth century was a time of great change in Japan, the country began its quest for industrialisation, and with it the Emperor's desired modernisation, shortly after the Meiji Restoration of 1868 (Dunn, 1972, p. 9). During the Edo era, between 1603 and 1868, Japan was cut off from the world's trade routes by a system known as *sakoku*, which preserved the feudal system ruled by the Shogunate, rather than the Emperor, whose role was confined to that of a figurehead (Kesselman, Krieger, & Joseph, 2009, p. 217). Whilst the period leading up to the Meiji Restoration is of interest from a sociological perspective, it is not relevant to the development of telecommunications, and as such will only be covered briefly for the purposes of establishing the origins of social behavior.

There are numerous texts describing Japan's history both before and after the Meiji Restoration, commonly regarded as the beginning of modern Japan (Hardacre, 1989; Inkster & Satofuka, 2000; Smith, 1995). For the purposes of gaining a rapid understanding of Japan's development during

the twentieth century, Smith (1995), provides a concise and comprehensive account of the Japanese rise to predominance within the global economy. The information is presented factually, in concise and manageable chapters, divided chronologically into political or economic trends such as the Occupation, the Period of High Speed Growth and the Oil Shocks. The focus of Smith's work covers the 50 years between 1945 and 1995 which, despite being published directly before the period most relevant to this research, for the time frame covered he provides one of the most succinct introductions to the political and economic history of postwar Japan.

An understanding of Japanese industrial development and its influence upon society prior to the 1940 is necessary to comprehend how a nation, that had only begun to modernise around half a century before, could be capable of building an empire covering most of South East Asia. Early industrialisation in Japan will not be covered in depth, as the intention is to provide texture, however this will be addressed in Chapter 2. Industrial development is included in order to illustrate how the emergence of mechanised industry is a particularly pivotal accelerator of social and geographic mobility, and is responsible for large scale changes. This is discussed by Kenneth Morgan (2004, p. 3), who addresses the changes as they occurred in Britain, the first nation to industrialise, highlighting the social and economic developments that the industrial revolution accelerated, including urbanisation, efficiently organised agriculture, and an improved national communications infrastructure. Though Morgan's book focuses on the period between 1750 and 1850, it illustrates the magnitude of the effects of a transition from an agricultural society to an industrial society. Though a slower process, due to a far greater geographical scale, John Rury (2005, p. 92) explains how the United States also went through a similar process of development. Yukiko Fukasaku (1992, pp. 18-19), illustrates Japan's industrialisation after 1868, following in the footsteps of Britain, the United States and much of continental Europe. Industrial development did not really begin until the mid-1880s, as the formative years of the Meiji regime were spent installing the social and economic institutions required by a modern industrial economy. Fukusaku points out that the Japanese industrial economy benefitted from the fact that the government itself was instrumental in starting up a number of industries, and that Japan was fortunate in that its population was already relatively well educated. These factors combining to make the transition

rapid but comparatively smooth. Herbig and Jacobs (1997) contribute a concisely written article on the innovation process in Japan, which provides a valuable link assisting in the comprehension of the contemporary Japanese system.[11] They illustrate how industrialisation was a strategy employed by the Japanese government, that was designed to avoid the fate of China and India, both of which had succumbed to colonization. This argument explains the fervour with which the Japanese approached early industrial development, and the speed at which it occurred.

Due to an increase in contact between Japanese people and Westerners, accounts from the post Second World War period are more prolific and available from both American and Japanese perspectives. Japanese authors Odagiri and Goto (1996, p. 37) provide an account of postwar industrial development, outlining the positive and negative effects of the US occupation. One example illustrating Japan's rapid development is drawn from the 20 years between 1955 and 1975, when the number of Japanese involved in primary production slipped from 40% to 15%. While development has positive effects on individual and national wealth, it should be noted that urbanisation is often blamed for causing community breakdown, which is linked to social problems including teenaged delinquency, depression and suicide, all of which have increased in the Western world as a result of an isolating modern lifestyle (Einstadter & Henry, 1995, p. 137).

Other studies, have shown that communications technologies such as e-mail and mobile phones have been implicated as culprits in maintaining this kind of lifestyle, as observed in the *hikikomori* phenomenon, whereby people (usually teenagers) lock themselves away in their room and maintain contact with the outside world only through their internet connection or mobile phone (Jong & Schuilenburg, 2006, p. 58). Despite the fact that Japan has not escaped the stressful lifestyle associated with contemporary society, it still lacks many of the safety-net institutions designed to minimise the impact of these problems as described by Kingston (2005, p. 260) who highlights the severe shortage of child welfare officers, the lack of whom affects not only the

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[11] Japan could be described as a system due to the close relationships between industry and the state. These were weakened during the US occupation, but are still in operation today and can be observed by looking at Japanese protectionist policies and by looking at the allocation of government funding and contracts. In many countries the state and business operate separately, however it could be argued that many large corporations have such enormous bargaining power with governments, that business controls a significant proportion of policy.

children themselves (whose abuse and neglect often goes unnoticed or unreported) but on the families and later upon wider society as these damaged yet unidentified individuals become teenagers and adults themselves (Cassel & Bernstein, 2001, pp. 146-147). In Britain, where the social welfare system is more developed, children and adults thought to be at risk are supposed to be monitored, and the state intervenes in these families if problems emerge. Analysing the social welfare systems in Britain and Japan is just one way of highlighting cultural differences between the two societies. By understanding differences in social priorities between the two societies, it will be possible to identify reasons behind cultural preferences in product design. It is hoped that this will provide evidence of the development of consumer culture relating to the mobile phone, and show how they are consumed and used differently in the two countries. Comparisons between Japan and the United Kingdom will be analysed in depth in Chapter 2.

Religion also has a significant influence upon values and behavior. Most Japanese have distinctly different sets of values and therefore patterns of behavior to those of the citizens of other developed countries (Sugimoto, 2003, p. 21), which tend to be predominantly Christian, with North America and Europe forming the majority of the first industrialised world.[12] Traditionally, due in part to is geographical location, and also because of the Shogunate's *sakoku* isolationist policies during the Edo period (1603-1868) (Tashiro, 2004), Japanese society has had little exposure to Christian ideology, has developed its own values based on Buddhism and Shinto,[13] and since the Meiji Restoration, on a Shinto-based nationalist belief that Japan is in some way different from other countries. According to Harvey (2000, p. 269) this Shinto nationalist sentiment was the basis for Japan's wars with, among others, China, Korea and Russia, during the early 20th century. According to the popular press, a popular nationalist movement has resurfaced as part of former Japanese Prime Minister, Shinzo Abe's attempts to reverse the Japanese constitutional pacifism (M. J. Green, 2007; Jaques, 2006; Mathur, 2007). Religion is just one aspect of culture, but it tends to inform a multitude of social norms and values. It is therefore likely that religion has played a

[12] The global economic pattern is likely to look very different 20 or 30 years from now, with Asian countries, particularly India and China, being the largest developed countries with a combined population that dwarfs contemporary Europe and North America.

[13] Shinto is a religion native to Japan. In Shinto, all natural forms are divine and equal.

significant role in the formation of contemporary society in Japan. Religious beliefs govern the decision making process of leaders,[14] inform design and architectural policy (Shelton, 1999, p. 155), and social control (Ferraro, 2006, p. 356). Religion is therefore a significant factor in the development of the design of everything from products to infrastructure. On a more basic level, many historical artifacts, including clothing, monuments and decorations, are of spiritual significance. The designs of and techniques used to produce these artifacts can still be found today (De Mente, 2006, p. 6). The various influences of religion will be discussed further in Chapter 2 and 4 where its impact upon design will be discussed in more depth.

Another factor marking Japan as different from Western countries, is its unique political climate. This is both indicative of the culture and also a factor driving the cultural agenda, and is therefore relevant to any discussion about Japan. Smith (1995, pp. 160-161) provides an overview of Japanese style democracy, explaining how the Liberal Democratic Party (LDP) has managed to remain in power ever since the end of the Second World War, except for a brief period from August 1993 to February 1994, when a number of factions split from the ruling party denying the LDP a majority in the House of Representatives, and also since August 2009, when the Democratic Party of Japan won the general election. Hirschmeier and Yui (1981, pp. 271-274) reveal a system that encourages factionalism and which is effectively governed by powerful bureaucrats, who are highly skilled and well practiced compared with most of the politicians they channel their policies through.[15] Political influences on design and technologies will be expanded upon in Chapter 2.

Beyond the sphere of politics and economics, social relationships in Japan are governed by a strong affiliation to the group.(Inkster & Satofuka, 2000, pp. 99-100; Ishida, 1983, pp. 23-24; Varley, 1984, p. 337). The reason for the strength of group affiliation in Japan is a historical necessity to cooperate, stemming from living in a relatively densely populated country with scarce natural resources, and little cultivatable land. Cooperation has been necessary to ensure survival,

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[14] Witnessed in the countries that follow the Islamic Sharia law system, or in abortion policies in Ireland and the United States.

[15] Major decisions in Japanese politics are usually taken by non-elected, highly educated bureaucrats who have passed the notoriously difficult civil service exam. The majority come from prestigious colleges including Tokyo University and Kyoto University.

and this has been preserved in the form of a collectivist culture, which is deeply ingrained in the Japanese psyche (Renshaw, 1999, p. 70). Group ties may have loosened to some degree during the latter half of the 20th century but in the author's experience, observing both adults and children in a variety of settings, the group still remains at the core of Japanese culture. An understanding of the roots of contemporary Japanese culture offers clues as to how the mobile phone has changed Japanese society and vice versa. It will also prove important in providing a context for contrast between Japan and Britain in terms of mobile phone design.

In a strongly group-orientated culture, standing out from the crowd is discouraged. Japanese people must behave, sound and, above all, look like part of the group to which they are supposed to belong. According to Kuniko Miyanaga (1991), a social anthropologist, the Japanese live in a world that is both uniform and diverse. Uniformity in the form of state provided education, standardised clothing for almost every stage of life,[16] a strong sense of being Japanese, and speaking a standardized language. Diversity in geography, food, climate, dialect and income. Expressing individuality is difficult because the group mentality persists, e.g. dressing up and hanging out in Harajuku, an area in central Tokyo where young people gather, is done in groups who tend to wear similar types of themed clothing. There is a perceived need to belong to a tribe (zoku) even when attempting to express individuality. This is not uncommon in other cultures where, especially amongst teenagers, there is a desire to belong to a peer group whilst rejecting the values of the establishment, usually parents and teachers (Coleman & Hendry, 1990, pp. 114-117). Miyanaga goes on to describe Japanese education as a contradictory system whereby children learn the importance of group behavior whilst being encouraged to compete as an individual in exams. According to Renshaw (1999, p. 70), this contradiction is often criticised by older Japanese.

Albach (1994, p. 381) highlights the way in which the rigid and highly centralised Japanese education system, which disallows flexibility and encourages imitation, stifles creativity. He agrees

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[16] With the exception of the majority of elementary schools and universities uniforms are required at most Japanese institutions, including many vocational colleges and a number of offices, where one would normally expect to see people wearing their own clothes.

with Nagai's (1971, p. 60) argument, that this was a choice, made by Japan, and that creativity had been used in incorporating Japanese thinking into a Western style education system. Albach (1994, pp. 382-383) goes on to explain that imitation before creativity was one of the core Meiji government policies. Also noting that an educational focus on the combination of detail and technique has enabled the Japanese to develop a population with the skills to create the highly technical products such as electronics and automobiles, the goods that Japan has become associated with producing. Though as the country has developed, and as other East Asian economies have built their own manufacturing bases, Japan has had to adjust to ever increasing numbers of service-based jobs, requiring different skills to those associated with manufacturing (Pascha, 2004, p. 238).

By understanding the Japanese education system, with its emphasis on process, technique and the acquisition of facts, it is possible to envisage how it created an environment ideal for companies wishing to develop skills manufacturing technical products, that require a great deal of precision in production. Nancy Sato (2004), describes the broad elementary school curriculum in her book *Inside Japanese Classrooms*, where she acknowledges the interdependent relationship between the school, pupil and parent. Though her style is somewhat gushing and tends to emphasize the positive, much of this book still represents a valid account of the aims and practices of the contemporary Japanese elementary school system, and how it relates to the wider cultural context. The attention paid to the acquisition of skills in a broad range of subjects, does not follow through the education system. Once pupils move to Junior High School and High School, they become part of a system increasingly focused on conformity and exam results, usually with strictly enforced uniforms which suppress expressions of individuality, as described by sociologist Shoko Yoneyama in her book *The Japanese High School: silence and resistance* (1999). Yoneyama depicts the Japanese education system as being in crisis, countering Sato's gushing praise. However, it should be noted that the books describe different stages of the education system and must therefore be evaluated separately. What is clear throughout both of these texts is that Japanese education reinforces the cultural preference for precision and rigor in every aspect of pupils' lives. It is this level of attention to detail that has surely been critical to Japan's success in

the high-tech industries and particularly in manufacturing. Despite different perspectives, both Yoneyama and Sato recognise that because of the strictness and conformity required throughout their education, most graduates of the Japanese system are loyal, team orientated, highly disciplined and willing to obey orders without question (Sato, 2004; Yoneyama, 1999). As Fisher (1998, p. 10) points out, they make perfect workers at all but the very top levels of an organisation. However, by the time workers reach the level of executive, they have spent so many years there, that they have developed a deep understanding of the corporate philosophy, which enables them to fulfill their job role, safe in the knowledge that organisational safeguards are in place, and that their fellow executives think in a similar way. More recently a number of Japanese multinationals have taken on non-Japanese CEOs, including the Brazilian, Carlos Ghosn at Nissan since 2001, and Sir Howard Stringer, a British-born naturalised US citizen who has headed Sony since 2005 (The Economist, 2009, March 7). As the workplace gradually changes in response to global economic shifts, Japanese businesses have had to adapt. The education system that feeds the economy has also changed to some extent, introducing English language education to younger children, and using computers in schools, but many of its practices remain.

The inadequacies or perceived inadequacies of the Japanese education and employment system are directly connected to the innovation process in Japan, which is set up somewhat differently to equivalent processes in Europe or the US. According to Herbig and Palumbo's (1994) research into Japanese innovation, the system is set up to benefit society as a whole, rather than the individual or even a particular company or organisation. Their findings coincide with previously discussed notions of the relative strength of group behaviour, as opposed to individual expression, and of process innovation over product innovation. Herbig and Palumbo (1996) have also looked into industrial partnerships with higher education, which at the time, was not encouraged, and the *shugyo* system whereby employees are shunted around companies regardless of their expertise, this has helped them to gain a sound understanding of the system as it stood in the 1990s. The innovation process offers a relevant window into Japanese creativity and by implication into the design of high-tech product design. Without an understanding of the fundamental processes by which a product comes about, it is not possible to comment authoritatively on the final product. The

social, cultural and economic conditions in which the product is designed, manufactured and sold, influence the outcome of the product. The Japanese innovation process is part of a wider corporate culture, which is the result of various historical events. In the following chapters, historical events and resulting policies and trends will be analysed in order to understand their potential effect upon the design history of the mobile phone.

Literature on historical factors affecting influencing culture will form the basis of this investigation into Japanese design as a socioeconomic phenomenon. However, analysis of more contemporary issues is also necessary in order to understand the specific significance of the mobile phone. Studies of mobile phones (Agar, 2003; Funk, 2004; Ito et al., 2005; Ling, 2004; Steinbock, 2005), have focused on either the technological capabilities, or the social significance of advances in communications technology, although Agar (2003) attempts to blend the two to some extent, with reference to the mobile phone and crime. How technical functionality or social phenomena relate to mobile phone design, and vice-versa, has not yet been widely researched. Japan is often studied as a curiosity (Press & Cooper, 2003, pp. 13-14), an exception to the 'normal' pattern of development (Inkster, 2001, p. 38). With its unusual heritage, Japan has developed as a consumer society with significantly different values to those of other similarly advanced economies.[17] These differences will be analyzed in depth in chapters 2 and 3.

**Economic Literature and Data**

The latter half of the twentieth and the early part of the twenty first centuries, have provided a large quantity of literature on Japan, produced by both internal and external commentators. The main reason for this proliferation in literature was the unprecedentedly rapid economic expansion of Japan throughout the late 20th Century. *Nihonjinron* which roughly translates to Japanese Studies, but is in reality a study of the uniqueness of the Japanese people (Rosenberger, 1992, p. 101), has been produced since the Meiji Restoration, with Western authors including among others, Ruth

[17] Vodafone would certainly agree with this diagnosis. Japan is the only country where Vodafone has not successfully launched and retained a significant market share.

Benedict, *The Chrysanthemum and the Sword* (1946), Bernard Rudofsky, *The Kimono Mind: An Informal Guide to Japan and the Japanese*, (1965) and Jonathan Rauch, *The Outnation: A Search for the Soul of Japan,* (1992), also contributing to the body of work on this topic. During the 1950s, as the Japanese economy emerged from post-war ruin, its people began to enjoy the material comforts provided by modern manufacturing. Books charting the economic rise of Japan through the late 20th century include reverential titles such as Stone's *Japan Surges Ahead* (1969)*,* Ezra Vogel's *Japan as Number One: lessons for America* (1979), through to Zurlo's, *Japan: Superpower of the Pacific* (1991). The latter, despite being published 2 years after the collapse of the Bubble Economy[18] and subsequent recession, remains positive about the Japanese economy. Even Smith, writing in 1995, entitled his book, *Japan since 1945: The Rise of an Economic Superpower* (1995)*,* though he does acknowledge the negative aspects of the Japanese economy such as 'karoshi' (translated as 'death from overwork'). Amongst books written in the 1980s, Woronoff's (1985) book T*he Japan Syndrome* stands out as a critical assessment of life in Japan in the midst of accounts of Japanese economic prowess.

Literature from the late 1990s onwards is generally more stinting in its praise for Japanese-style business. Once again the climate can be gauged from titles such as Woronoff's *Japan as - anything but - number one* (1996) which plays on the title of Ezra Vogel's 1979 work, Woronoff highlights the negative side of Japanese social institutions and economically for smaller enterprises that must pander to large conglomerates. It is important to remember that, despite an economic depression lasting 20 years, Japan managed to sustain the world's second largest economy after the United States (Tsukamoto, 2006). However, in August 2010 it was announced that Japan's economy had been overtaken by China (Barboza, 2010), something that had not been predicted to occur until 2020 (The Economist, 2007b). It is important to remember that China is several times more populous and has the advantage of far more abundant natural resources than Japan (Taylor, 1990, p. 7). This miscalculation of China's growth rate is a good indication of the often over valued predictions by Economists. In the twenty-first century, with the Japanese economy stuck in long-

[18] The Bubble Economy was the time during the 1980s when the Japanese Yen, became vastly inflated above its real value, due to over-speculation on both land and the stock market.

term recession, Steven Vogel's[19] book *Japan Remodelled: How Government and Industry are Reforming Japanese Capitalism* (2006) charts the decline of Japan's economy and how government and business have adapted. Published during the economic boom, Vogel's work does not cover the effects of the global economic downturn beginning in 2007. Economic data shows that Japan, along with its closest neighbours, suffered during this period, due to a global decline in demand for manufactured products (The Economist, 2009).

Understanding Japanese business is key to this investigation. For the purposes of this thesis, Marie Anchordoguy a professor at the University of Washington who has published numerous papers on the Japanese high-tech industry, provides a key text covering Japanese business practices, but set in the context of the high-tech industry. Anchordoguy (2005) identifies the underlying culture of large Japanese companies, as 'communitarian capitalism', providing employees with housing, education and social benefits. Although this culture is gradually slipping away, the principles of lifetime employment and corporate welfare remain dear to many Japanese. Here Anchordoguy captures a specific point in history, to which it seems increasingly unlikely that Japan can return.

In addition to the cultural differences that differentiate Japanese business practices from those found in the UK, it is also necessary to note parallels. As pointed out by Jon Agar (2003, pp. 81-86), in his short but in-depth look at the mobile phone, corporate customers were the initial users of the mobile phone in the 1980s and early 1990s, and through handsets such as RIM's Blackberry, remain mobile phone companies' most important consumers, the mobile phone is inextricably tied to business in both Japan and the UK. However, with the British manufacturing industry in decline, it is international brands that provide the majority of British mobile phone handsets. Contrastingly, the emergence of Japan after the Second World War, in particular the skill of the Japanese to move into traditionally European and North American domains including the manufacture of complex machinery, was, by the 1970s, attracting admiration from businesses and academics throughout the world (Ohmae, 1982, pp. 1-5). Before this, as Japan first began to

[19] Ezra Vogel's son and professor of Political Science at UC Berkeley

emerge after the Second World War, it was subject to derision and active resistance by governments and industry for imitating and then dumping goods. However, the rapid improvement in the quality of its products during the 1950s and 60s prompted a great deal of literature to be written about its business practices and corporate cultures, which are quite different from anything seen in developed countries at that time. During the 1980s, Western businesses, particularly those involved with manufacturing, were adopting Japanese practices (Saka, 2003, p. 74). However, by the late 1990s, during its long recession following the collapse of the Bubble Economy, Japanese businesses were once again mimicking the West by attempting to take on aspects of the American business model such as performance related pay (The Economist, 2007c). It is clear from the literature that the way the Japanese conduct business, from sales techniques to human resource management, remains fundamentally different from the dominant Western model (Yoshimura & Anderson, 1997, pp. 1-4).

Since the economy has matured, as with equivalent developed countries in the West, the service industry in Japan has become dominant, and according to *The Economist,* accounted for 70% of GDP in 2007 (The Economist, 2007c). During the latter half of the 20th century, when manufacturing was the dominant sector, a high rate of growth was possible, as the Japanese model of capitalism developed into a system well suited to the highly disciplined nature of producing high quality electronics and automobiles. As discussed previously in this chapter, during the initial period of rapid economic growth during the 1960s, the so-called 'baby boomer' generation of children born after the Second World War provided plenty of well educated, disciplined young workers who could be paid low wages (United States Congress Joint Economic Committee, 1990, p. 42). Since then the Japanese population structure has changed significantly, with fewer children being born and a large proportion beginning to retire, leaving a smaller workforce to support the economy, and fewer young people to feed industry. The sectors in which Japan remains strong, namely automotive and electronics manufacturing, have shrunk in proportion to the service industries (Statistics Bureau, 2010). This gives the impression that workers in Japan have become far less efficient than they were before the growth of the service sector. However, according to *The Economist*, it is the inefficiency and insularity of the service

sector that is dragging down average productivity in Japan (The Economist, 2007c). The automotive and electronic sectors remain somewhat buoyant, with Toyota overtaking General Motors in unit sales in April 2007 (BBC News, 2007, April 24), and Nintendo Wii and Sony Playstation (The Economist, 2007f), which are in some ways compensating for the poor performance of the service sector. This should be remembered when discussing the growth of other Asian economies such as South Korea, which has also built a strong consumer electronics sector, particularly in the mobile phone market, with Samsung's global mobile phone market share up from 14.1% in quarter four of 2007 to 17.9% by the same time the following year, and LG's market share up from 7.2% in Q4 2007 to 8.7% in Q4 2008 (Cellular News, 2009, January 23). With Sony Ericsson, Motorola and Nokia all losing market share, the two Korean companies now make up more than 25% of the global market share. However, if Clayton Cristensen's (1997) theory of 'disruptive technologies' is correct, then Samsung and LG will eventually be overtaken by other smaller, more innovative companies.

Japanese manufacturing firms have produced a number of, what Clayton Cristensen calls 'disruptive technologies'. Disruptive technologies are products that produce paradigm shifting phenomena, such as the personalisation of music that has occurred since the introduction of the Sony Walkman in 1979 (Bonner & Wiggin, 2003, pp. 100-124). In order to understand better the concept of disruptive technologies, Cristensen, a Harvard Business School professor, has written much on the subject. *The Innovators Dilemma* describes the transition of Japan from the world's most successful industrial economy in the 1980s, to its least during the 1990s (Bonner & Wiggin, 2003, pp. 100-124; Christensen, 1997). According to Cristensen, problems within contemporary Japan include a lack of flexibility in the labor market, a resistance to globalisation and products that are stuck at the top end of the market and must therefore command a certain price and high expectations in terms of quality (2009, p. 48). Disruptive technologies theory explains not only Japan's rise to economic power, but also its protracted economic downturn. Prior to the bursting of the Bubble Economy, few could have imagined that a recession could last for more than 15 years. Cristensen discusses Japan in *Seeing What's Next* (2004, pp. 211-212), suggesting that Japan's most significant problem is that its rigid financing and corporate structures discourage Japanese

innovators from branching out and creating start-ups. For a concise account on the rise and fall Japan's economy, see Chapter 4.

More detailed information on economic and cultural overlaps such as marketing can be found in articles such as 'What does marketing really mean to the Japanese?' by Genestre, Herbig and Shao (1995), which illustrates, how Japanese marketing differ from those of Western manufacturers in a number of respects. Whereas the majority of companies in the West aim to increase profits, Japanese companies attempt to increase market share by dropping prices below the levels of profitability. Products are cheaper because the products are designed to use standardised parts and several generations are designed at once. The article touches the surface of differences in business culture, it explains manufacturers' responsibility to ensure their customers know how to use products correctly due to the elevated position of the customer in Japanese society, as well as the basics of corporate finance. Herbig has written other articles on aspects of the Japanese high-tech industries and innovation, his work with Fred Palumbo (1994 & 1996), is of interest as it analyses cultural and regulatory differences between Japan and the United States, which have enabled Japanese electronics, and more recently automobiles, to dominate the global markets. Herbig and Palumbo's research clearly explains how, implemented on a large scale with government backing, Japan has been able to infiltrate foreign markets, sell high quality products cheaply and build up a significant market share, in many cases, seriously damaging or eliminating domestic competition. Written in the mid-1990s, this research is now out of date, but reflects the state of the industry at the time, before Korean electronics had built up a significant market share in the West.

As an economist who has written a number of books about business in East Asia, Ruth Taplin's *Risk Management in Japan, Britain and the United States* (2005) provides ample evidence of Japan's continued investment in research and development, from both the public and private sectors, and how a mutually reinforcing relationship between government and industry has been beneficial in producing high quality, innovative products. Taplin brings together both Japanese and Western commentators from various fields, all of whom have a stake in Japanese intellectual

property. Intellectual Property insurance underwriter Matthew Hogg's chapter on intangible assets is of interest because it covers the loss of Sony's hold over the Walkman trademark in Austria in 2002, where it was decided that Walkman had become a generic name for portable music devices. His analysis concludes that the risk of brands becoming generic is especially high where a product creates a new category, as with Cristensen's disruptive technologies. Examples of innovative products, whose brand names that have become generic, include Google, Kleenex, Thermos, Hoover and Xerox (Taplin, 2005, p. 60). All of which are still trading today, but which now have a multitude of competitors. The mobile market has not yet produced a product so innovative or that has such a huge market share as to become generic, but the iPhone is proving extremely popular and in the author's experience is beginning to become the blanket vernacular name for touch-screen mobile phones. The only product to come close to this is NTT Docomo's *i-mode* which still captures an enormous share of the market in Japan. However, outside of Japan and Korea, the limited services offered by the mobile internet have not proved as popular, and *i-mode* has failed to make a significant impact. Recent evidence would suggest that British consumers, who have grown accustomed to using the internet on a PC, want quick and low-cost access to a full web browser rather than a cut down, low graphics version of the internet (PR Newswire, 2008, June 11).

Kiso's work on the business partnering of mobile phone manufacturers (2007), is useful in that it provides a detailed account of the history of this kind of partnership. It is, however, weak in analytical content, and merely describes the standards and agreements that have resulted from partnership between firms. Insufficient analysis is evident throughout the sphere of Japanese academic writing. This stems from a fact-based education system with little room for flexibility, or creative work, as discussed on pages 6 & 7 and further in Chapter 2. The mechanical learning that characterises the Japanese education system was ideal for producing workers for a manufacturing-based economy, but is inadequate for the computer-based economy that Japan has become. This is evident from the lack of human capital in relatively recently established industries such as software development (Siddique & Sree, 2003, p. 246).

Anthropologist John McCreery (2000) introduces his book on Japanese consumer culture by describing the way in which Mark Zimmerman, President of the American Chamber of Commerce in Japan, first encountered Japanese culture. Zimmerman (1985, p. 4). He writes in an anecdotal manner based on his own experiences, and is struck for the first time by the realisation that culture is not merely an abstract academic concept, but has applications for the real world. McCreery also notes the importance of John Sherry's (1995) assertion that in order to understand the world around us, it is important to first understand consumption. This means that by understanding consumption, we can begin to understand culture, which is true to an extent, but cannot be the only parameter used. McCreery continues by addressing postwar Japan and how its institutions came into existence. Consumer behavior is important to this research. Manufacturers, mobile operators and service providers are all attempting to design products that will attract a large number of consumers.

**Public Opinion on Japan**

The details of "public opinion" on Japan is unknown. Some researchers have attempted to extrapolate "public opinion", or Western opinion, by investigating commonly held misconceptions about Japan and the Japanese. For example, in order to illustrate the lack of Western understanding of Japanese popular culture, Delores Martinez (1998, p. 2) attempts to debunk the myth of a single, homogenous, Japanese culture. In doing so, she acknowledges the absurdity of treating a population as a single entity, while simultaneously treating "most Westerners" in exactly this way by assuming that, firstly, they have a fully formed image of Japanese culture, and secondly, that they believe it to be homogenous, male dominated and contradictory, to name but a few. This is presumptuous and based upon a premise that lacks any evidence. McVeigh (2004, p. 58) also cites "common perceptions of Japan" without giving a source for this assumption. There are many instances of assumptions about Japan being made without any form of evidence to back them up. Information on Japan in Western media is scarce due to the geographical bias of most media outlets, with the British media spending a greater proportion of time reporting on Europe and the US news than Asia. Commentators own assumptions, which they seem to use as evidence of

public opinion, disregards the fact that the majority of those undertaking research on Japan are from a certain niche section of society, usually they will be well-traveled and highly educated. If instead anecdotal evidence from discussions with people from a wide range of social and economic backgrounds were to be used to ascertain public opinion and understanding about Japan, it is possible that these researchers would find that the majority of the population has little or no knowledge. Therefore, the use of phrases such as “common perceptions” or “public opinion” should be limited to situations where there is some proof of the existence of these attitudes.

**Society and Technology**

Theories on technology’s role in shaping society, and vice versa, are key to developing an understanding of both how the mobile phone came to be such a ubiquitous technology. ‘Technological determinism’, a term coined by Thorstein Verblen the 1920s,and preceded by the idea that technology moulds society, which was a popular theory during the Victorian era (Murphie & Potts, 2002, pp. 11-12), is described by Mackay (1991) as the theory whereby technologies are developed independently of society and shape our social environment unidirectionally. Mackay argues that the technological determinist model, as outlined sociologist Marshall McLuhan (2001, pp. 7-24) and further explored by philosopher Jean Baudrillard (1994, pp. 34-35), is too simplistic, and that the adoption of technologies requires choices to be made by social actors. Therefore, there must be a two-way interaction between technology and society (Mackay et al., 1991, pp. 6-8). The theories of Baudrillard and McLuhan are more concisely explained by Murphie and Potts in *Culture and Technology* (2002, pp. 13-17). The premise of both Baudrillard’s and McLuhan’s contemporary technological determinist argument is that the technology that carries the media, whether it be on television, in print, or on the internet, determines the way in which it will be reported and therefore also, how it is interpreted (Murphie & Potts, 2002, pp. 13-17). Murphie and Potts go on to discuss ‘cultural materialism’, which looks not only at the influence of technologies, in this case communications technologies which, without doubt have a major impact upon society, but also at the socioeconomic circumstances that lead to the invention of these technologies. The

term ‘cultural materialism’ was coined by Raymond Williams, an influential left wing figure in the development of cultural studies (Eagleton, 1989; Inglis, 1995; O'Connor, 2006),[20] whose work is described by Murphie and Potts as filling in the gaps left by technological determinism theories which do not cover factors such as social or political need, or potential economic gain (Murphie & Potts, 2002, pp. 17-19).

By understanding theories on technology in society, it is possible to extrapolate meaning from the mobile phone as a cultural product. Theorists including Williams (1974) and Winston (1998), have outlined the social, political and economic circumstances required for a product. It is the designers’ and technologists’ imperative to create a product that is easy enough to use that it will capture the zeitgeist of its era. Japanese technological services such as i-mode and ez-web were able to do this, whereas its British counterpart WAP, failed to gain enough momentum when it was first introduced, and has taken nearly 10 years and required complete rebranding (now Vodafone Live, Web’n’Walk etc.) in order to gain consumer acceptance. The technological and cultural circumstances that gave rise to the mobile phone as a ubiquitous consumer product will be discussed in Chapter 3.

**Other relevant information**

The subject of this thesis is the constantly changing design of the mobile phone and its role in society. It is impossible to isolate this information from the economic, political and social world around us, as this provides important contextual information. By digesting information from multiple media outlets, including the internet, television and printed press, the author has been able to develop an overview of the role of technology in our society. Satirical news for example, provides a critical analysis of world events and the reactions of the mass media. Television shows such as *The Daily Show* and *Newswipe*, regularly show multi-channel footage of events, highlighting the bias and hyperbole of mass-market news outlets such as *Fox News* or *The Daily Mail*, reminding

[20] Numerous biographies about Williams’ life and work have been written since his death in 1988

the viewer that the companies behind the news have political agendas. Sources such as *The Economist* provided numerous articles on the mobile phone and on the telecommunications industry. It is also an accessible source of information on Japanese, politics and economics. For a more in-depth look at the Japanese economy, the *Nippon Keizai Shinbun* (Japan Economic Journal) provides industry specific information from an economics and finance perspective, and could be compared to Britain's *Financial Times* or the United States' *Wall Street Journal*. All of these publications cover both macroeconomics and microeconomics, with a bias towards the free market economy (Becker, 2000, pp. 68-74).[21] Though the economic press does not contain significant information on design, these publications are relevant to this thesis from the perspective of trend analysis and information on technology investment and development. In terms of the subject matter covered in this thesis, a basic understanding of concepts such as 'churn' rates, the rate at which consumers switch service provider, and network standards, the different frequencies used by telecommunications companies, is necessary to comprehend factors such as the technology behind the mobile phone and consumption of the complete product including network and services. Designers cannot operate in a vacuum, external factors influence their work, market forces being one of the strongest influences.

Design can also create its own markets, but in the case of the mobile phone this is not possible without investment in the technologies that enable the product to operate smoothly. Products that have redefined the consumer electronics market include Apple's iPod (and now iPhone) and the Sony Walkman, with the Walkman being a precursor to the iPod. Though these products were new product concepts with revolutionary designs, it is important to remember that they were only able to succeed thanks to the investments made by the companies that produced them. Part of this investment funded marketing campaigns that were well designed to appeal to the right sort of young influential consumer as described by Malcolm Gladwell (2000), a commentator on social

[21] Though their ideological differences may be similar, Kip Becker found that the geographic biases of the major economic publications cuts the world into three regions, with the Wall Street Journal reporting on North America, the Financial TImes mainly on Europe and the Japan Economic Journal reporting on the Pacific Rim.

phenomena, whose concept of *The Tipping Point* offers an explanation for the epidemic-like spread of both the Walkman and iPod throughout developed societies.

Industry literature such as annual reports and marketing literature, are also also useful to obtain images of designs, although its writing is less reliable as it is biased towards attracting and retaining investment. Many of the larger corporations have their own museums, with corporate archivists. Understanding corporate history offers insights into the products they produce and the company's long term vision. Sony has its own website and a museum charting its history (Sony, n.d.). The museum contains key products from the vast collection of merchandise produced since the companies founding, and describes its impact in terms of consumption and subsequent product development. Sanyo has a similar museum, as do many other electronics manufacturers; many also have showrooms displaying the latest products, also allowing the public to interact with them. KDDI, a telecommunications company that sells mobile phones under its AU brand, has set up a showroom in Harajuku, an area of Tokyo popular with teenagers and young adults. The KDDI Designing Studio (KDDI, n.d.-b), incorporates a theatre area where popular bands and other types of celebrities come to perform televised concerts and seminars. The building also has a cafe, and hosts regular events where participants can win prizes.[22] This highly interactive space showcases the AU brand and its phones, and provides a wealth of information on contemporary Japanese youth culture and its relationship with the mobile phone. The concept is similar to that of the Apple stores, enticing consumers by allowing them to experience the products before purchase, but taking this further by providing food, drink and entertainment. The encroachment of mobile phone brands into lifestyle will be covered in greater depth in chapter 5.

A contemporary form of communication, and host to a huge amount of information, the internet, is home to numerous chat rooms and mailing lists focused on the mobile phone and the products and services it provides. Forums such as Mobile Monday have a global network of industry professionals each subscribing to mailings for their local chapter as well as to a weekly newsletter from the global organisers (Monday, n.d.). Mobile Monday is primarily a platform for the exchange

[22] Usually AU branded goods such as stickers, toys and phone accessories.

of information on new products and services for those in the mobile phone industry. Internet information cannot always be relied upon, but forums and blogs provide a good starting point for obtaining public and industry opinion on products and services. Read discerningly, the internet holds a multitude of valid and reliable information. In researching a product as contemporary as the mobile phone, this is particularly true. Since virtually all information about the mobile phone has been written since the invention of the internet, it is only natural that a significant proportion of this information is available digitally.

**What is Missing?**

As addressed in the Contribution to Knowledge, the proliferation of mobile phones, encroaching on the daily lives of people from diverse demographic groups, means that proportional to its influence, little has been written on the subject. Telephony itself has been given relatively little attention in terms of its cultural significance. The telephone is largely absent from the field of design history, its initial status as a utility, and its eventual universality and functionality seemingly providing little to comment upon from a design perspective. As a utility the telephone fell into the category occupied by white goods such as refrigerators, ovens and washing machines, or household conveniences including radiators and showers, warranting some design attention, but little prestige. Digital technology elevated the telephone from a home and office necessity to a portable convenience, then falling prices made the mobile phone affordable to all and finally the most economical solution for the largely unconnected developing world. This rapid transition has been covered in various depths from a technological and somewhat sociological perspective by Agar (2003) and from a business angle by Steinbock (2005), but many details are missing.

Funk (2004) and Fasol (1997-Present) have details the technological and business developments, while Ito et al. (2005) investigated a variety of social phenomena specific to Japanese mobile phones. However there is no literature that brings together design, technology, business and social elements of the mobile phone as an important cultural product.

The internet provides a huge database of visual information showing the design development of the mobile phone. From the review of available literature, it is clear that this has been collected and to some extent analysed by manufacturers and designers. However, as with many high-tech products, the pressures of increased functionality and time to market combine to create a much compromised design. In 2010, the mobile phone markets in Japan and Britain has matured, they were already reaching saturation point around 2005. Since this has occurred during the past five years, as this thesis was being written, new developments have stagnated, while literature related to mobile phones has increased significantly. Much of this new literature has focused on either business or sociological phenomena, leaving a significant gap for a design-based analysis of the history of the mobile phone.

The importance of design is often overlooked. Certainly it is more difficult to quantify than microchip performance or sales figures, there are no definitive numbers that can be attached to the intangible qualities that good design adds to a product. Similarly it is almost impossible to accurately quantify the frustrations brought about by awkward user interfaces. However this is understood by the consumer. There is a large degree of implicit understanding between manufacturers and their consumers as to what a quality finish looks and feels like. This understanding is largely a creation of marketing, where materials such as leather, glass and metal (particularly precious metals and titanium) have long been promoted as high quality and desirable, whereas plastics are functional and durable (Stewart, 1996, pp. 48-51). It is details such as these psychological responses, and their cultural origins that will be investigated in this thesis. The mobile phone will determine  the content of the investigation, but the findings will tell us about wider cultural similarities and differences between Britain and Japan.

# Chapter 2: Culture and Society in Japan: a comparison with the United Kingdom

In order to provide a context for the development of the mobile phone, it is first necessary to outline the products and social changes that led to it becoming a ubiquitous consumer product. This chapter will cover the opening up of Japan after 1868, the period known as the Meiji Restoration, through to the rapid economic growth that resulted in the expansion of the Japanese economy into the world's second largest by the end of the 1980s. Since the growth of Japanese economic power is largely attributed to the export of electronics and automobiles (Fischer, 2000, pp. 146-147), the consumer electronics industry has necessarily had a significant impact upon the lives of all Japanese people, whether consumers or manufacturers. Japanese goods are now used throughout the world, whether the whole product or, more commonly, components of other devices. Where appropriate, comparison will be drawn with the UK in order to provide a frame of reference for understanding the similarities and differences between the two countries. This chapter will cover the most relevant information to set the scene as a means of understanding contemporary Japan in terms visual culture and consumer lifestyles.

**The Natural Order**

Geographic factors including landscape and weather, have a direct influence upon Japanese visual culture. Where Britain has a landscape made up largely of rolling hills, Japan is a topographically dramatic mountainous archipelago of islands with very little flat land (Bowen & Pallister, 2005, p. 128). The country stretches from 24‘ in the South to 45‘ in the North, with a variation in climate similar to the difference between Montreal in Canada and La Habana in Cuba,[23] giving Japan an enormous range of flora and fauna. Japanese cities are densely populated as they must be built on the few kilometres of relatively flat land between the sea and the mountains. There are no cities of any significant size that are not located on or near to the coast. This proximity to the coast can be

[23] Author's own calculation

observed in Japanese food, much of which comes from the sea. Another factor in Japan's relationship with nature, is its vulnerability to extreme weather conditions, and natural disasters. The country sits on the edge of several tectonic plates, has numerous active volcanoes and suffers from regular earthquakes and tsunamis. It is also subject to a monsoon season in June and a typhoon season in August and September. By comparison, the UK has little experience with extreme weather, reflected in the fact that any weather conditions regarded as out of the ordinary can bring the country to a standstill (BBC News, 2003, January 31).

Both Britain and Japan have used technology to overcome natural barriers whether it be by building dams, bridges or reclaiming land from the sea. However in Japan, there is more of a contradiction between the Shinto tradition of respecting nature, and the desire to harness it in order to upgrade infrastructure, which, on an archipelago consisting of thousands of inhabited islands, is necessary to improve the quality of life and to boost economic productivity. Rapid economic development and the resulting urbanisation has given rise to enormous conurbations consisting of tightly packed high-rise apartment blocks (see left-hand photograph on the following page of Asakusa, Tokyo), served by a myriad of schools, hospitals and shops. From the mix of building types, heights and colours that make up the outward appearance of the Japanese urban environment, there would appear to be a general lack of concern for the aesthetic outcome of construction projects on the part of town planners. The difference with London is immediately obvious (see Illustration 2. on the following page). A huge number of Britain's historic stone and brick structures are legally protected, such that the exterior cannot be altered by developers. Although new buildings can be constructed, they must conform to strict codes, designed to ensure that the buildings themselves look appropriate for their surroundings. As a result of this type of legislation, most British cities have fewer high rise buildings and are therefore less densely populated than Japanese cities.

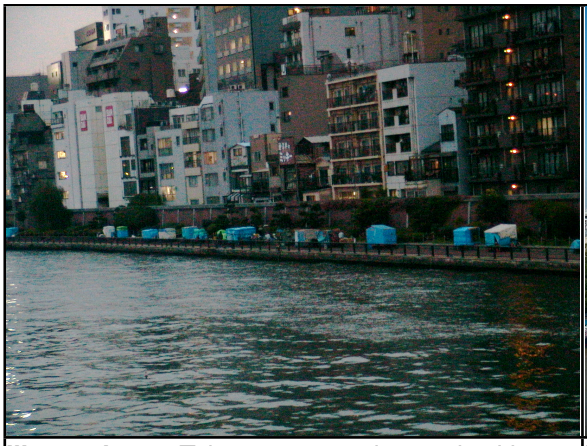

**Illustration 1.** Tokyo appears cluttered, with various building styles and sizes, crammed onto small plots. Due to frequent earthquakes, Japanese buildings are built to fall down as safely as possible, but are not designed to last. The embankment here has been claimed by homeless people who have built shacks out of blue plastic sheeting. Homelessness is tolerated by the authorities as there is little infrastructure available to help people to reintegrate into society.

**Illustration 2.** London looks considerably more spacious than Tokyo, with iconic and historical buildings mixed together. This section of the river Thames, near Charing Cross, has a large proportion of white buildings. The tree-lined embankment, provides leisure space for residents and tourists. The area is near to government offices and the royal palace, and is therefore heavily policed. Homelessness is a significant problem in London: however it is far less obvious here than in Tokyo.

The allocation of urban green space is also important for the environment and the well being of city residents, providing a social space that can be used for recreation and relaxation (Bourn, 2006, pp. 5-7). Japanese cities have among the smallest amount of public green space per head of population in the developed world: Tokyo has 5.3 square metres, Osaka 3.4 and Kyoto only 3 square metres per head of population. Compare this to 29 square metres in London (Tokyo Metropolitain Government, n.d.),[24] or 14% of urban spaces throughout the UK (Bourn, 2006, p. 9), and take into account that this figure does not include private gardens, and it becomes clear that most Japanese live in a far less healthy environment than the majority of British people. At 83% (Japanese Government, n.d.), the proportion of Japanese living in urban areas is not significantly different to the UK which has around 86% living in large towns or cities (Department for Environment Food and Rural Affairs, n.d.). However, if we look at patterns of urban migration, particularly into and out of London and Tokyo, it is clear that urbanisation has occurred at a different rate. Japan urbanised rapidly in the last century, whereas Britain already had many urban centres by 1900, including Manchester, Birmingham and Glasgow. British urban populations even

[24] Tokyo Metropolitan International comparison of per capita parkland area in large cities, to 6 Japanese cities

started to shrink in the 1940s, partly as a result of wartime bombing but also partly due to natural attrition, as advances in the transportation system allowed people to live further from their workplace (Armstrong, 2000, pp. 242-251).

As noted above, urbanisation in Britain and Japan occurred during different centuries, following the progress of industrialisation. In Britain the industrial revolution occurred during the late 18th century, making it the first industrial economy in the world. Japan did not industrialise until the late 19th, after the Meiji Restoration. In Britain, cities including Manchester, Birmingham and Glasgow, grew up near to industries as diverse as textiles, mining and shipbuilding. With a vast empire providing a wide range of natural resources, Britain had many advantages not available to Japan when it began to industrialise a century later. The British landscape changed considerably during and after the industrial revolution, with increasing emphasis on food production for city dwellers. A population which had once been subsistence farmers flocked to the cities to take up jobs in industry, bolstering the construction industry by increasing the demand for new urban housing. However, construction could not keep pace with the influx, forcing up the cost of urban housing and causing overcrowding (Williamson, 1990, pp. 279-280).

High population density puts pressure upon infrastructure, requiring greater capacity in a multitude of services from water supply to schools. The design of the urban environment affects the way people behave (Pacione, 2005, pp. 410-411), consider the effect of speed humps on traffic speed, or cycle lanes on bicycle use. If urban design can affect human behaviour and psychology, then it is significant to the analysis of cultural differences between and even within countries. The high population density of Japanese cities is as a result of both nature and nurture. Nature shaped national geography, and continues to have an ominous presence due to the tectonic fault lines upon which Japan lies, and urban designers, planners and architects made it possible for a greater number of people to live in a small space, by building both upwards and underground. In Britain, a similar population density is more spread out, due to gentler hills and a more forgiving climate.

The urban environment in both Britain and Japan is very different. Therefore, it is likely that people's behaviour within these environments will differ significantly. Japan's three-dimensional cities are exceptionally difficult to navigate without a map. The centres of many of its major cities have several kilometres of tunnels underground featuring shopping malls and subway terminals, as well as high rise districts with multiple stories of bars, shops and restaurants. Though not immediately obvious, this is significant to the design of mobile phones. One example of mobile phone services catering to consumers' needs is in the area of mapping. Due to the complexity of Japanese cities, location-based services and mapping technologies were developed very early on shortly after the mobile phone became a ubiquitous consumer product. J-Navi, the first location-based service, including maps, driving directions and business directory, became available on J-Phone in May 2000 (Karimi & Hammad, 2004, p. 186). Although location-based services, including the directories Yell.com and Brainstorm, began to appear in the UK when WAP became available in late 1999, they were limited to text-based applications due to the bulky handset designs of the day (Haig, 2003, pp. 165-174). In order to provide the necessary detail required for maps, large, high-definition screens that could be easily navigated from a mobile phone keypad were needed. Changes to screen size and keypad will be discussed further in Chapter 3. The question of how differences in the physical environment came about, will be addressed in the next section, which gives a historical overview, covering political, social and economic change.

## Historical Factors

### Feudal Society to Industrialisation

Japan was the first country in Asia to develop a sophisticated modern economy. Due to Japan's isolationist policies during the reign of the Tokugawa Shogunate, Japan had very little contact with other countries from 1600 until the late 19th century. Under the Meiji Restoration, beginning in 1868 returned the Emperor from his role as figurehead to the position of head of state (Dunn, 1972, p. 9). Japan began to change under the auspices of the new imperial administration (Jansen, 2000, p. 408). The country started to open up to the outside world after nearly 300 years of self-

imposed *sakoku* or isolationism. The transition to a modern industrial economy occurred rapidly during the late nineteenth and early twentieth centuries, as Japan attempted to emulate the industrialisation that had occurred in Britain, the United States and throughout Western Europe (Kornicki, 1998, p. 107). According to political sociologist Peter Preston (2000, p. 60), Japanese aspirations were not to emulate advanced countries like Britain and the United States, but to rival their political and economic power. Imitation of products and institutions was not intended to Westernize Japan, but rather to modernize rapidly, using the experience of other countries to leapfrog technologies and unsuccessful ideologies. In order for Japan to move from a feudal society to a modern, industrial nation, a bureaucracy had to be established that could centrally control social and economic activities. The Japanese version of bureaucracy differed from those in Western countries, in that it exerted far greater control over business. This link between government and business emerged because the Meiji government sponsored industries in order to help the country catch up with the West as quickly as possible (Reischauer & Jansen, 1995, p. 334). During this time there was a rapid influx of Western goods including food, clothing and household goods and techniques such as cotton spinning, many of which were adopted to some extent by the Japanese to some extent (Smitka, 1998, pp. 78-79). Western clothing for example, was first adopted by men, as it became compulsory for civil servants, but then slowly spread throughout society beginning with the accessories and outfits of the upper classes (Sadao & Wada, 2003, p. 248). However, it was not until after the Second World War, that Westernisation changed the lifestyles of Japanese people significantly (Hanley, 1997, pp. 173-175).

**Arts and Crafts and the Meiji Restoration**

The role of arts and crafts in the opening up of Japan was not insignificant. Japan offered little of interest in terms of natural resources; it was therefore more of interest to scholars and artists than to industrialists. Artistic ideas and techniques were exchanged as the West learned of, and became fascinated with Japanese craftsmanship (Guth, 2004, p. 91), and as Japan absorbed Western style architecture, fashion and product design. The Western artistic techniques used in painting and sculpture taught at the 工部美術学校 (Koubu Bijutsu Gakko) or Technical Arts School which was

established in 1876, but was closed a few years afterwards in 1883, having successfully educated the craftsmen who were to build the Imperial palace (Fujimura-Fanselow & Kameda, 1995, p. 68; Takeuchi, 2004, p. 161).[25]

During the Edo period, when Japan was ruled over by the Tokugawa Shogunate, arts and crafts techniques became highly developed. Skills were handed down through an apprenticeship system requiring several years of intensive training, primarily involving imitating the techniques of master craftsmen (Rohlen & Bjork, 1998, pp. 5-7). Traditionally, the Japanese believe that freedom of expression and creativity can only come after mastery of techniques, and that the most effective way of learning this through the emulation of an expert. By understanding the system of master and apprentice, it is clear that there is a cultural link between this and imitation of Western products from the Meiji period onwards. A culture emphasizing the positive results of imitation allowed the Japanese to adopt Western techniques and ideas quickly and to adapt them to fit their own situation. This, and the fact that, by the mid-nineteenth century, Japan had a literacy rate comparable to other advanced nations, meant that it was well prepared for rapid industrialisation (Rohlen & Bjork, 1998, pp. 5-7).

As Japan began to open up and increasing numbers of Westerners visited the country, traditional arts and crafts began to be brought back to Europe and the United States by explorers. Some of the woodblock prints made their way into the hands of artists during the early 1860s and provided inspiration to Impressionists including Degas and Van Gogh, and inspired a style dubbed *Japonisme*. In 1867 an international exhibition, the *Exposition Universelle,* was held in Paris, with the Japanese pavillion generating a great deal of attention (Kleiner & Gardner, 2010, p. 661). Japanese goods were initially classed as curiosities rather than art and generally described using the Victorian word *curio*.[26] After the exposition the popularity of Japanese art and craft products

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[25] The school was closed because it  as a pilot programme and established primarily to train those who would decorate the Imperial Palace.

[26] Curio is a cover all word used to describe a cultural artifact which the observer is unable to classify verbally within his own experience.

soared to the extent that the demand from Europe helped to finance Japan's early industrialisation (Kleiner & Gardner, 2010, p. 661). This was followed by the Meiji era Japanese creation of the distinctions *bijutsu* and *kogei*, to distinguish arts and crafts for international exhibitions. This coincided with a general assimilation of Western cultural values into Japanese society whereby, in the case of arts and crafts, the system of valuation of arts and crafts was adopted to some degree. In the United States, Japanese arts only began to be recognised as such after the Philadelphia Exposition of 1876 (Guth, 2004, pp. 91-94).

The legacy of Japanese arts and crafts is visible in the clean black, white and silver colours of electronic products, many with square buttons and perpendicular lines, all features which can be seen in traditional Japanese furniture and architecture (see Illustration 3). The attributes are not commonly found in traditional British design, which has changed much over the centuries, but does not demonstrate the same geometric shapes or stark colours. The influence of traditional Japanese design on mobile phones both in Japan and the UK, will be further discussed in Chapter 3.


Illustration 3. These images demonstrate the clean perpendicular lines found in traditional Japanese architecture and interiors. First two images taken by author, third image from the Luxury Home Design Blog http://luxuryhomedesign.blogspot.com/2009/01/japanese-house-traditional-interior.html accessed 15/11/2009

**Zaibatsu**

As Japan embraced industrialisation, nationalised industries were sold to wealthy families thereby creating powerful companies known as *zaibatsu*, the four largest of which were Mitsui, Mitsubishi, Sumitomo and Yasuda. These companies were self-supporting financial cliques which typically controlled a holding company which in turn owned numerous affiliated companies covering a wide

range of industries such as banks, manufacturing and mining companies (Hsu, 1999, p. 505). Because they were originally nationalised companies, the *zaibatsu* were protected by the government who bought their products and services, allowing them to diversify and grow. By the 1930s, these *zaibatsu* wielded immense power, and controlled a huge proportion of the domestic economy. It was at this time that the military was gaining power over the government. The older *zaibatsu* were associated with the conservative government and were hated by the military. In order to fulfill the military's ambitions of creating a Japanese empire, new *zaibatsu* were supported. These went on to compete with the older *zaibatsu* for government military contracts, thus returning the balance of power to the governments (Morishima, 1982, p. 95). Though they were dismantled to some extent after WWII, many subsidiaries of the original *zaibatsu* companies still exist today, including Mitsubishi, which has businesses as diverse as banking and the manufacturing of automotives, electronics and stationary.

Originally *zaibatsu*, Matsushita (Panasonic) and Mitsubishi today manufacture mobile phones for the domestic Japanese and East Asian markets. The influence of the *zaibatsu* upon the business landscape of contemporary Japan is of significance because their legacy has created a culture of cross-shareholding which results in an anti-competitive environment, which makes it difficult for small firms of foreign competitors to establish themselves. For the consumer this means that the large electronics firms operate a cartel-like hold over the market, artificially inflating prices, that could be cut in a free market environment (Hollerman, 1988, p. 137). However, the collaboration between firms has allowed for a highly integrated design process, resulting in more integrated products that are easier to use. Therefore it would appear that there is a need for compromise between competition and collaboration.

**War**

For much of the late nineteenth and early twentieth centuries Japan was at war with its neighbours. Victories in the Sino-Japan (1894-5) and Russo-Japan (1904-5) wars bolstered Japanese confidence in their military might (Addington, 1994, p. 128). The most effective weapon Japan

possessed were soldiers who were willing to die for their Emperor. During the build up to the Second World War, when Japan was fighting in Manchuria, Japanese industry was being pushed towards a wartime economy where the majority of workers produced heavy industrial and chemical goods required for warfare (Morishima, 1982, pp. 130-131). Japan was defeated in 1945, by which point much of its infrastructure had been damaged by allied bombing, so that by the end of the Second World War, a large number of buildings needed to be completely rebuilt (Lyon-Bestor, 2002, p. 31). Japan's reputation for highly destructive fighting tactics including the *kamikaze* attacks on US warships, and poor treatment of prisoners of war, turned many against the Japanese people, with some anti-Japanese sentiments remaining today (Menton, Lush, Tamura, & Gusukuma, 2002, p. 147).

Without its participation in the Second World War, Japan would be a very different place today. Certainly the ambition to become a developed industrial economy has been in place since the Meiji era (D. J. Williams, 1994, pp. 134-135), but the postwar occupation by the Allied forces acted as a catalyst to development. Without America's determination to keep a foothold upon democracy in East Asia, and its help in rebuilding the economy, Japan could have become a Communist nation (Schonberger, 1989, p. 280). This would have stalled development, not only for Japan, but also for Taiwan and Korea which have duplicated the Japanese economic model by building a reputation for increasingly high quality manufacturing (Whittaker & Cole, 2006, p. 5). The lessons learned, initially by the Japanese, but subsequently by manufacturers in the West from Japan, about the design of consumer electronics, remain important to the development of the industry as a whole. It is therefore possible to infer that the development of the global electronics industry would have been very different without Japan's participation in WWII.

**Post WWII Industrial History of Japan: The Growth of Consumer Electronics**

When, on the 15th August 1945, the Emperor made his first ever radio broadcast announcing Japan's defeat, the country was in a state of complete devastation. For the Japanese people, this announcement was not only the end of the war, but also the end of the Emperor's existence as a

deity. However, it also signaled the end of the wartime hardship endured by the Japanese people. With the pre-war infrastructure in ruins, the people's pride in tatters, not to mention mass starvation, high levels of unemployment, and the near total annihilation of two cities, Nagasaki and Hiroshima, the Japanese were tired of war (Andressen, 2002, p. 118). Immediately after their defeat, the Japanese were fearful of reprisal by the Americans, but were pleasantly surprised that their fears were unfounded. At the time Japan was desperate for new direction. This came in the form of an American occupation, led by General McArthur, a paternal leader who commanded respect from the Japanese (Hirschmeier & Yui, 1981, p. 264). General McArthur, presided over the Supreme Commander of Allied Powers (SCAP), which was the occupying authority charged with rebuilding Japanese infrastructure and ensuring the country neither fell into the hands of communists(Tipton, 2008, p. 156), nor could once again become a military threat within the regional or international order (Hook, 2005b, p. 93). Although MacArthur was not specifically mandated to ensure a robust economy, but to make sure economic power had a wide distribution, rapid economic growth was the eventual result of policies implemented during the occupation (Andressen, 2002, pp. 120-121). SCAP remained in control until the Peace Treaty of San Francisco in 1951 (Hirschmeier & Yui, 1981, p. 292), during which time the occupying administration dismantled the military, government and several of the pre-war Zaibatsu companies. The presence of American troops influenced the consciousness of many young Japanese children through packaging, cigarette cartons and other emblems of a democratic way of life. Meanwhile the Japanese media helped to reinforce the image of an affluent nation where everyone had electronic goods that helped to enhance their lifestyles. This is described by Simon Partner in his book *Assembled in Japan: Electrical Goods and the Making of the Japanese Consumer* (Partner, 1999, pp. 49-51).

One of SCAP's priorities was to widen the distribution of income and to secure a supply of food for the population. This was achieved through land reform, whereby no rural family was allowed to own more than ten acres of land (Andressen, 2002, pp. 120-121). This was largely successful in terms of agricultural production and in producing a significant land owing class of small farmers.

The manufacturing base and transport infrastructure established since the Meiji Restoration, would have provided an ideal point from which to start an export trade of Japanese goods to US and European markets. However, American incendiaries destroyed much of the Japanese industrial building stock, which had been mostly wooden (Stevens, 1997, pp. 42-43). In order to generate income from foreign exports, Japan developed its light manufacturing industry (Genzberger, 1994, p. 4), which required less investment than heavy industries, especially in resource-poor Japan. The Korean War was a boon to the emerging economy in Japan and proclaimed by the then Prime Minister Yoshida as 'a gift from the gods' (Buckley, 2002, p. 265), as $4 billion worth of orders for textiles, automobiles and communications equipment for the United States military boosted these industries and the Japanese economy (Andressen, 2002, p. 125).

By the 1950s, the Japanese were producing cheap copies of American electronics, and exporting them throughout the world, but mainly to the US. It was at this time that Japanese companies began to realize that in order to grow, they would need to develop and design their own products. During the late 1940s and early 1950s, there was a huge problem with quality control in Japanese manufacturing plants. Japanese products were famous for being of poor quality. This was remedied by the introduction of American style quality control measures. Statistical Quality Control (SQC) measures were originally introduced during the 1920s but had been forgotten during the war. After the war, a number of experts were called in to assist Japanese industry in improving the quality of its products. Edwards Deming is perhaps the most well known of these. He arrived in Japan in 1948, and introduced lectures on quality control to Japanese business men in July 1950 (W. C. Johnson, 1996, pp. 49-50). Deming's ideas went beyond the simple model of SQC used by industries in the United States, whereby samples are taken from a production line and tested and if the number of faulty products is statistically significant, then the entire batch is discarded, he advocated introducing quality control measures for every level of the organisation. It was during the postwar period the Union of Japanese Scientists and Engineers (JUSE) was formed to work with SCAP helping to rebuild the country and its industries (W. C. Johnson, 1996, p. 49).

According to Jon Beckford (2002, pp. 93-95), Deming, and other quality control experts including Magill, Feigenbaum, Sarasohn and Ishikawa, Japanese electronics and telecommunications products were transformed from inferior copies of western designs, to high quality modern goods that could compete globally. Much of this is thanks to the introduction of Total Quality Control, whereby every member of an organisation was trained and involved in quality control. Kaoru Ishikawa, a student of Sarasohn and Deming, and president of JUSE, was instrumental in implementing this program, and is responsible for revitalising Japanese manufacturing. In many respects Japanese quality control processes transcended those of most of their Western competitors.

From the 1950s, consumer electronics became an important industry in Japan both domestically and for the export market. Though in the early days, they mimicked western, and particularly American products, by the end of the 1950s, manufacturers had begun to appoint designers, and some even created design departments separate to engineering (Zukowsky, Pollock, Hirano, Hakamada, & Heskett, 1998, p. 85). The formation of the Japan Industrial Design Association (JIDA) in 1952, came at a time when industrial design was growing in status within electronics manufacturers such as Sony, Toshiba, Sharp and Canon (Woodham, 1997, p. 135 & 176). However at the time there was no specific industrial design education available in Japan, so the government sent four promising students per year abroad, to the United States and Germany. In his essay *The Development of Modern Japanese Design*, Takuo Hirano, one of these students, recounts how a lack of funding meant that they were required to complete their studies in one year, then were brought back to Japan to teach what they had learned to other students and to Japanese firms (Hirano, 1995, pp. 220-221). Meanwhile, American designers including Raymond Loewy, Russell Wright, George Nelson and Walter Sobotka were invited to Japan to design products and packaging, and E.A. Adams and John Coleman of the Art Center School in California toured factories to advise on design processes, and George Jergensen, also of the Art Center School, ran a design course in Tokyo (Pulos, 1988, pp. 791-793). These efforts, along with the improvements in quality control introduced by Deming et al., contributed to the rapid improvement

of Japanese industrial design.

Without the strong and generous guiding hand of the occupying allied troops after WWII, it I unlikely that the defeated nation would have become as Americanised as it is today. In rebuilding the country in a Westernised style, and splitting up the powerful *zaibatsu* the occupying forces laid the foundations for the nation Japan was to become. From a European and American point of view, Japan's export industry has eventually destroyed many of their own domestic manufacturing industries. This is particularly true of consumer electronics such as CD players and televisions, but interestingly has not proven the case for mobile phones, of which the most influential brands globally include, Apple (American), Blackberry (Canadian), Samsung (Korean) and Nokia (Finnish). It is also noteworthy that Japanese consumer electronics brands are gradually becoming less influential as their market share is eroded by Korean brands LG and Samsung, as well as cheaper Chinese and Taiwanese brands that have made vast improvements in quality in recent years.

**Principles of Postwar Japanese Business Culture**

Out of the postwar economy, Japan developed a unique business culture that proved useful during times of rapid growth and expansion, but more recently has become a burden. By gaining an understanding of Japanese business culture, it is possible to comprehend the unusual nature of Japan's economic power relative to its population and access to natural resources. These idiosyncrasies will be explained in terms of their origins and their effects upon the economy.

**Keiretsu 系列**

The Japanese system of *keiretsu*[27] is a relic of the pre-war *Zaibatsu*[28] whereby companies partake in cross-shareholding to secure relationships with suppliers and financiers. This protects them from

[27] Keiretsu 系列 are groups of cross shareholding companies, who make these arrangements in order to cement ties. N.B. there is no plural in Japanese.

[28] Zaibatsu 財閥 were large conglomerates which controlled huge proportions of the Japanese economy. The Zaibatsu were split up by the Americans after WWII, as they were believed to have been critical to Japan's imperialist ambitions and were seen as being anticompetitive. For further information see, Morikawa, H. (1992) *Zaibatsu: Rise and Fall*, Tokyo, University of Tokyo Press

hostile takeovers and ensures the loyalty of suppliers. However it does not allow for fair competition and has even been described as a post-feudal system whereby the manufacturer or buyer holds a great deal of power over their suppliers, in a similar manner to the landowner and peasant relationship (Hsu, 1999, p. 112). *Keiretsu* are particularly common in the consumer electronics and automotive industries, where there can be several layers of suppliers. *Keiretsu* are accused of being anticompetitive and economically inefficient, as their existence prevents the entry of more innovative companies, whose products may be cheaper or more efficient than the goods of existing suppliers (Inkpen & Ramaswamy, 2006, p. 188). *Keiretsu* are beginning to be undermined, by transnational mergers and acquisitions, the numbers of which are gradually creeping up, as Japan gives in to the pressures of globalisation (Fasol, 2008, April 18). The effects of globalisation should normalise Japanese business to some extent by forcing them to compete in an unprotected global market. The withdrawal of the majority of Japanese manufacturers from the European mobile phone market around 2003 is proof that their current business model is no longer effective. In order to change the current downward trajectory in global market share, Japanese electronics manufacturers need to reevaluate the *keiretsu* system. However, in terms of manufacturing mobile phones, with their complex layers of physical, interface and service designs, working collaboratively, as in *keiretsu* (see also *zaibatsu* for collaboration between different divisions of the same firm) is beneficial in terms of usability. This will be analysed in more depth in Chapter 5.

**Nemawashi[29] 根回し and Ringi 稟議**

The importance of the group is a key feature of Japanese culture. In business this means not deviating from the status quo. In order to avoid conflict in meetings, decisions are made beforehand in a relaxed atmosphere such as an *Izakaya*.[30] This can often be frustrating for foreigners wishing to negotiate with the Japanese, as their proposal will never be discussed openly

[29] Nemawashi is a process by which decisions are made by consensus at all levels of an organisation

[30] Izakaya 居酒屋 are a cross between a restaurant and a pub. A drinking establishment which serves food in the form of snacks and dishes that can easily be shared. In Japan it is rare to drink alcohol without eating. Uchi 内 means inside, soto 外 means outside. A high level of importance is placed on group membership, therefore uchi has positive connotations and soto is often negative.

in a meeting and no decision can be taken on the spot. Business decisions in Japan are rarely taken spontaneously by an individual executive. The consultation process involves a large number of stakeholders. The system by which proposals are drafted is known as *ringi*, whereby a lower tier manager drafts a proposal, which is then passed around various departments for adjustment and approval, it is then passed up to the next tier of management for the process to be repeated, before finally being handed to the top tier of managers. This system means that decisions are made from the bottom up and will therefore be in the interest of the lower rank employees (Hirschmeier & Yui, 1981, p. 348). The whole decision-making process is known as *nemawashi*, which means preparing the roots, and ensures consensus throughout an organisation (Hsu, 1999, p. 113). It is however cumbersome and time consuming, and there is evidence that some of the more dynamic Japanese companies such as Matsushita are gradually replacing both *ringi* and *nemawashi* with more individualistic, western style decision making processes (Hook, 2005a, p. 222).

A shift away from using traditional decision making processes may also have negative affects on product design, as the inclusive nature of *ringi* and *nemawashi* diminishes. The input of multiple staff members may have help to enhance usability as proposals are passed from engineers and designers to a large number of other staff members without technical knowledge, who more closely resemble users. The benefits of the *ringi* process are that any flaws in the original idea are likely to be spotted due to the large number of stakeholders who are involved in the review process. This means that theoretically, products that have come about as a result of this process should be more user friendly. This is particularly important for mobile phones, as they are used daily by a wide range of consumers with varying technical knowledge.

**Seniority**

Confucian cultures, as found in Japan and China, value age and experience more than Western cultures (Rosser & Rosser, 2004, p. 161). Throughout the period of rapid economic growth in Japan, this meant pay and status were both seniority based. Contemporary business theory does

not support this as a sustainable model, especially given that the population of Japan is now in decline. An opportunity for reform will be the retirement of the enormous baby-boomer generation that were born immediately after WWII. The problems associated with seniority based pay, reached critical point in the mid-2000s, when the vast numbers of those born between 1946 and 1955 occupied the highest tiers of corporate remuneration, and were draining company resources. As the Baby Boomers generation retires, the pay of subsequent generations can become more performance-based (Inkster & Satofuka, 2000, pp. 75-80).

**Market Share Over Profit**

The pursuit of market share rather than profit, especially in the export market, has led to accusations of dumping. Consumer electronics in particular have been exported to be sold at a loss in order to boost market share, with domestic customers picking up the difference. The Japanese emphasis on market share is due to an emphasis on company growth, ensuring long term employment for all employees. An emphasis on market share is beneficial to the consumer as is it results in lower profit margins and therefore also prices. A focus on market share and long-term corporate sustainability is also likely to be beneficial to the design process, as a focus on developing consumer loyalty means that products will be of higher quality and more user friendly. Japanese companies are able to focus on market share over profitability because of their unique corporate ownership structure, with large proportions of shares held in cross-shareholding agreements as well as several being held by banks, the number of liquid shares is small and the power of individual shareholders is weak (Inkpen & Ramaswamy, 2006, p. 188). However, this is changing in the face of increasing globalisation with increasing numbers of foreign firms acquiring Japanese companies.

**Corporate Welfare**

Anchordoguy (2005) has dabbed the Japanese system communitarian capitalism. The employee is looked after by his firm, as is his family.[31] This system remains standard for many larger

[31] The stereotypical employee subject to this system is male

companies, with housing provided for singles (usually male) and young families and generous rent subsidies for private sector renters in companies where there is insufficient housing stock. The employee will also receive travel expenses covering the entire commute to work, an annual medical check up and a bonus worth between one and four months worth of pay twice a year.[32] In turn, the employee is expected to contribute to his corporate community by working overtime without compensation, regular socialising with other members of staff and joining company sports teams. An employee is also expected to move offices or departments at short notice, often uprooting his entire family to another city or country.[33]

This system is extremely expensive for firms, and was part of the lifetime employment package offered by companies during the period of rapid economic growth. Many companies have retracted their benefits in the years following the collapse of the Bubble Economy, wages having been driven down to prevent mass redundancy. It is likely that these will be cut back even further as more Western management practices are adopted as the result of globalisation. Cross-border mergers and acquisition deals are beginning to change the ownership profiles of Japanese companies. As the profile of shareholders changes to a more Western model, there is likely to be a corresponding shift in corporate culture, with shareholders demand greater control, and profit maximisation becoming more important than taking care of workers.

For high-tech Japanese electronics firms including Mitsubishi, Matsushita, Sony and Toshiba, communitarian capitalism as described by Anchordoguy, conveys a further benefit in retaining corporate knowledge. In Western companies, where employees tend to move around every few years, corporate knowledge is lost to other firms. In Japan, this knowledge is retained within the company, enhancing its competitive edge. For mobile phone manufacturers, who rely on retaining

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[32] The amount paid out as bonus allows Japanese companies to vary their payroll depending on company performance and, more recently, the performance of individual employees.

[33] This information is based on the author's own experience of living with two Japanese families, one of them multi-generational, and from working in a Japanese organisation. Further reading on Japanese corporate welfare can be found in Anchordoguy, M. (2005) *Reprogramming Japan: The High Tech Crisis Under Communitarian Capitalism*, London: Cornell University Press

a technical edge over their competitors, preventing staff turnover is one way to enhance success in a highly competitive market. Though in the past ten years, as the prominence of Japanese mobile phone manufacturers has diminished, even in the domestic market, it is clear that the various aspects of corporate culture that once helped to secure success, are no longer effective against global competition. Further analysis of the end of Japanese dominance in the domestic and global mobile phone markets can be found in Chapter 3.

**Contemporary Society**

The history of Japan reveals a number of social and cultural anomalies that are unfamiliar to non-Japanese. In order to fully comprehend the cultural differences that distinguish British and Japanese mobile phone consumers, the following pages will explain some of the beliefs and customs that form the basis of Japanese society in the early part of the 21st century.

**The Post-Bubble Economy**

Since 1990, the Japanese economy has been in recession. Despite this, such was its economic power at the peak of its growth that Japan retains its place as the second largest economy in the world well into the first decade of the 21st century. However, other countries, notably China, are catching up rapidly. The hold Japanese companies once had over the consumer electronics industry has loosened considerably since the late 1990s, as first Korean and more recently Taiwanese and Chinese companies have become able to manufacture high-tech, quality products at relatively lower prices. In the mobile phone market, Korean manufacturers Samsung and LG and China's HTC have become prominent global brands, whereas Japan's once dominant electronics brands have retreated to the domestic market.

**Group Culture**

The ability to work in a group is regarded the most important skill for life in Japan. Teamwork is therefore an important part of the socialization of Japanese children, who are taught from an early age that they must cooperate in order to succeed. The author has spent time in a number of

kindergartens and elementary schools,[34] where it was observed that children are placed in teams, where they are expected to work with the other members of the group, both on academic and non-academic aspects of school life, including collecting and serving meals, and cleaning the school (Sato, 2004). Japanese children are rarely given an opportunity to compete directly as individuals. School sports at elementary level are exclusively team-orientated. Sports day involves splitting the school into two teams using different colored hats, then the reds compete against the whites. The only time children must compete directly against one another is in examinations, where competition to get into the best junior high and high schools is intense. Because the emphasis is on group culture from an early age, most Japanese children accept this as the status quo, and do not speak out against group consensus. They rarely question the authority of teachers, and often cannot express their personal opinions, possibly because they are unable to form one. This behaviour becomes ingrained during the early years of primary education. This extreme adherence to the group, is difficult to accept for those who are accustomed to a more individualistic society. However, group-orientated culture seems to be reassuring for its members, who feel that they are not left to make important decisions alone, and who can rely on the people around them for help if they get into any difficulty. The group therefore acts as a community, within which the individual must operate, constantly compromising for the common good.

Group culture is further reinforced by the seniority system, whereby older members, or more frequently, the ones who joined first are expected to look after the junior members. The senior members or *senpai*, teach the younger ones or *kohai* the culture of the group, they are also expected to pay more for social events. In return *kohai* are expected to show their *senpai* respect by, for example, cleaning up after them, maintaining equipment, and serving their drinks.

Japanese group culture is underpinned by the uchi-soto dichotomy. *Uchi* means inside, and is used to refer to the family, company or team, but can also used to refer to Japan. *Soto* is anything

[34] Akasaka Elementary School, Kasuga Elementary School and Momochihama Elementary School, all in and Fukuoka.

outside. The concept is essentially a formalised method of distinguishing different levels of familiarity. This bond is displayed through language and behavior, whereby members speak to each other with a different level of formality to the way they speak to outsiders. Relationships with other group members are warmer and usually less formal than those with outsiders,[35] who are usually treated politely but not given the same level of access to information. Dichotomizing *uchi* and *soto* is useful, in that it allows companies to disguise distasteful information from the public eye.

Due to their extreme group orientation, mobile phones have a different meaning for Japanese people  than they do for British consumers. In both countries they are used as communication tools, but in Japan the handset is also an expression of personality and individuality, often customised with trinkets and stickers, but at the very least showing personalised pictures as a screen saver. In Britain it is common to find customisation amongst children and teenagers, but adults will generally only change the screen saver or ring tone. For Japanese mobile phone users, group identity can be signaled by using a particular model of handset, or by decorating it in a particular way. The ability to be an individual but still maintain a strong group identity, can be seen at its most extreme in Tokyo's Harajuku district, particularly near to the station and in the park, where young people meet at the weekend to talk, make music and dance together. The groups are clearly defined by their costumes which can be anything from characters in a cartoon, to French maids through to Elvis impersonators. The activity is known as *kosupurei* (costume play) (Takahashi, 2006), and could be compared to groups of British teenagers such as Goths, who dress up in extreme costumes and hang out in town centres at the weekend (Ward Thompson & Travlou, 2007, p. 75). However, in contrast to British youths who are often able to reveal their subcultural identities during the week by altering their school uniform or because they do not have one, Japanese teenagers usually have a strictly enforced school uniform, with no make up or jewelry being allowed in school (Yoneyama, 1999, pp. 119-120). Therefore Japanese young people

[35] Though the seniority system dictates that younger or less experienced members must treat senior members with reverence, this will be indicated linguistically.

search for other ways to express themselves and show group affiliation, and are able to using their mobile phones.

This type of group culture is not unique to Japan, it can be found to some extent in all cultures. However, it is the extent to which the Japanese socialise their citizens, both formally through the school system and informally through the family, into group behavior that makes Japan an extreme example of a group orientated society. Japan has further indoctrinated its citizens into group behavior through its media. The media exerts a strong influence over people, as it provides the main source of information on numerous topics, especially news and current affairs. The media in Japan is largely nationalistic, reflecting the conservatism of the Japanese people. Maintenance of the status quo is important for those in power, therefore a nationalistic, conservative media is desirable (Wolferen, 1989, p. 292).[36] Maintaining a conservative media which reinforces a sense of national unity fosters feelings of belonging among the Japanese people, the human need for belonging is outlined by Baumeister and Leary (1995, pp. 497-529), as a fundamental survival instinct, which is reflected in all cultures.

In order to draw a comparison, it is possible to use language to determine the difference between two cultures. Where there is a strong group affiliation, meaning can be more easily implied, without being expressly communicated, the opposite being true of individualistic cultures (Jaszczolt & Turner, 2003, p. 265). An example of this is the Japanese discomfort with direct refusal, or inability to say no. When a request is made of a Japanese person which they do not wish to fulfill, they will often use "*ima chotto*", which roughly translates as a reluctant "it's a little bit…", this will not usually be followed by any explanation. In English however, it is likely that the same situation would most likely be met with an outright "no", possibly softened with an explanation. Another example of this type of implied meaning can be found in Japanese advertising, which to foreigners can seem confusing and indirect. However in a culture where meanings are commonly understood, it is

[36] According to Karel van Wolferen, nationalism represents a view that one's country is superior to others, whereas patriotism is merely the love of one's country and a sense of a need to protect it.

possible to convey messages using imagery, the meaning of which would not be explicit to those who were brought up outside Japan. The use of imagery rather than direct comparisons or descriptions of a product, is also liked to the Japanese distaste for direct or comparative sales techniques (Melville, 1999, p. 169), which could be compared to their aversion to directness in conversation. Though it is possible to find British advertising that uses imagery to promote it products, this is often due to the rules imposed by the government, tobacco for example is no longer allowed to advertise in the UK, and alcohol is subject to heavy restrictions (Cronin, 2004, pp. 48-51). One company in Britain famous for using imagery and other subtle marketing techniques is the mobile phone network Orange. However, even Orange combines this with more explicit advertising directly associated with the products it sells.

In more individualistic Britain, where group behaviour is not instilled as rigidly through the school system, or the media, and it is not expected to the same extent within the workplace, a sense of belonging manifests itself differently. There are many British nationalists, including supporters of right wing organisations such as the British National Party or BNP, who believe in British superiority and wish to stop the influx of immigrants into the UK. This is contrasted by the large number of British nationals, largely the most educated, who emigrate annually,[37] changing the ethnic make-up of the population and creating a growing British diaspora. Group affiliations among British people are more strongly associated with geographical region than as a sense of being British as a nationality. This is due to historical tension between areas, e.g. The English North-South divide, and the semi-autonomous countries of Wales, Scotland and Northern Ireland.[38] Social class is also important to the formation of a British identity, as are age, educational background and occupation. Membership of groups, whether officially, as in an educational institution, or unofficially, as for example a supporter of a football team, provide identity, friendship and, to some extent, a lifestyle

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[37] According to government statistics 359,000 people left the country in 2005, rising to 400,000 in 2006. 15th November, 2007, National Statistics, *Migration from UK reaches 400000 in 2006*

[38] Tensions between social classes were publicly displayed when the bill banning the hunting wild animals with dogs was being legislated, and in more subtle ways such as the Western expansion of London's congestion charge, which was seen by many as being a deliberate slight against the upper middle class many of whom live in the area.

(Rosen, 2003, p. 3). An individual's identity is a complex web of groups possibly including, family, friends, community, workplace, school, football team and religion. These ties change in nature when the individual is outside their comfort zone, for example when traveling abroad. Time spent traveling is now commonplace for young adults from developed countries. Constant contact with friends and family is often maintained by those traveling and from those left at home, a relatively new phenomenon only possible since the introduction of the internet and the mobile phone. In terms of the contribution of the mobile phone in the context of international travel involving long periods away from friends and family, the ability to send and receive text messages provides an inexpensive way of keeping in touch, providing comfort in an unfamiliar environment and reaffirming identity.[39] The influence of the text message will be analysed further in Chapter 3.

**Education**

As mentioned in the previous section on group culture, for Japanese children, socialisation into conformity begins at kindergarten or day-care, where they are divided into groups within which they must cooperate. Teachers encourage conformity and cooperation through positive reinforcement of these behaviors, and by ignoring undesirable behavior. An emphasis on teamwork continues into elementary school, where multi-ability groups are created and achievement must be shared. These groups must cooperate throughout the school day, whether the task be academic, physical or welfare related. Within this system, teachers work to encourage children to sort out conflict within the group and solve problems together. They rarely chastise children directly, but will encourage discussion about an undesirable act or behavior. It is hoped that this will foster maturity and self-control, as well as enhancing self-esteem and building confidence (F. A. Johnson, 1993, pp. 145-147). Following the nurturing environment of the elementary school, Japanese pupils attend middle school for three years, where they encounter strict uniforms (uniforms are uncommon in

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[39] The comfort and identity affirmation that can derive from communication is suggested by Wood and Smith using evidence from the Pew report, which was compiled a year after 9/11, showing that a significant proportion of Americans had rekindled relationships with family members, friends or old colleagues in the aftermath of the terrorist attacks. Wood, A.F. & Smith, M.J. (2004) *Online communication: linking technology, identity, and culture*, London: Routledge, p.9 and Pew Report, 05/09/2002, 'A year later: The Internet and September 11', http://www.pewinternet.org/Press-Releases/2002/A-year-later-The-Internet-and-September-11.aspx accessed 16/03/2009

public elementary schools) the reinforcement of which serves as further encouragement towards conformity, and increasing pressure to perform academically in high school entrance exams (F. A. Johnson, 1993, p. 149). Depending largely upon the level of academic focus of a particular high school, dress codes and behavioral expectations can be quite different, so it is not as easy to catergorise this stage of the education system, except to say, that the majority of high schools, encourage conformity through the wearing of a uniform and adherence to a minimum code of conduct.

Compare this to the British education system, with its wide range of parental choice, including the options of home education, faith schools and specialist academies, it becomes easy to understand, how the Japanese system is restrictive to talented individuals and does not offer parental choice. However, when effective, the Japanese system serves society by providing it with highly conformist individuals, who make industrious workers. However, since it simultaneously suppresses creativity, socialisation within the Japanese education system, with its focus on conformity, inevitably fails to value the talents of individuals.

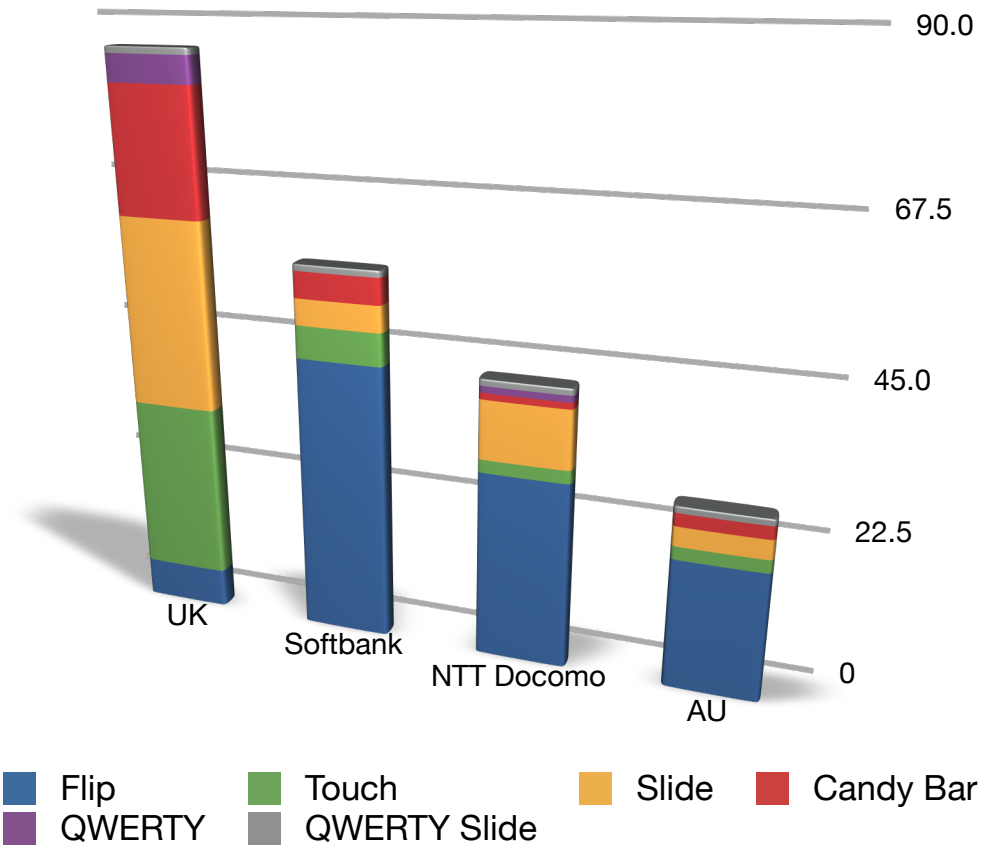
Socialisation of conformity is further reinforced by an almost complete lack of immigrants into Japan. Looking around most Japanese schools, it is unusual to see other nationalities or hear other languages. The experience of the average Japanese child, is that of a homogenous culture, language and race. This is very different to the experience of an average urban British child, who is likely to come into contact with children from a variety of different countries and ethnic origins. This early exposure shapes a child's identity. In a multi-ethnic culture such as Britain, children are aware of differences and encouraged to celebrate them. In Japan however, they are discouraged from acknowledging individual differences, and instead encouraged to suppress them.

Economically and politically, the results of the extreme conformity instilled by the Japanese system of socialisation, with an ineffective government that had until recently been in power for sixty years, and with an economy that has failed to revitalize for nearly two decades. If we apply this to mobile phone design, the Japanese conformist culture has produced a ranges of handsets which are consistently very similar in terms of shape and functionality. Evidence for this can be found in the

fact that despite their being a range of different types of mobile phone handset available, the vast majority of Japanese handsets are flip phones.[40] This compares to a relatively even spread of handset types available in the UK.

**Graph 1.**

**Phones by Type UK/Japan Comparison (November 2009)**




Source of data: author's research using mobile phone network websites for UK and Japan

**Crime and Deviance**

Despite having all of these institutions in place to promote the status quo, Japanese media is free and the publication of numerous magazines with pornographic content or that reference various other deviant behavior as well as those highly critical of the government are available in virtually

[40] 71% at the end of 2009, see graph

convenience store and bookshop (Ellis, 2001, November 19). Hirschmeier regards this as a vent for the natural outlet of the frustrations, that build up in a highly conformist society such as Japan. Though this is true enough, outlets such as the reading and discussion of deviant material, or dressing in an extreme and unconventional manner, as is common in the Harajuku area of Tokyo, has proved to be an insufficient outlet for many Japanese. More dangerous forms of deviant behavior are increasingly reported in the media; online suicide pacts, violent bullying, and infanticide have emerged relatively recently and are on the increase. However, in reality Japan has a disproportional fear of crime, considering it has one of the lowest crime rates in the developed world (Raizman, 2003, p. 289). Fear of violent crimes, particularly against children, has sparked a rise in parents buying mobile phones for their children. The manufacturers have taken this trend on board, and have begun to design handsets specifically for children with features that help parents to keep track of their location. This is covered in more depth in Chapters 3 and 4.

**Consumption in Contemporary Japan**

Evidence of Japan's consumer culture can be found everywhere. Major transport hubs have been incorporated into shopping malls and department stores. City centres often have one or more underground malls, with multiple story retail outlets also available above ground. Shops are open until 8 or later every day of the week, so that people can shop when they are not at work. The shopping districts are served by numerous cafes and restaurants, from global fast food outlets to mid-range European style brasseries. The author found proportionally far more food outlets in Japan than are found in a similar shopping district in Britain due to the fact that Japanese people have a culturally stronger relationship with food than the British population.[41] Developers try to ensure there is a large number of cafes and restaurants, as this encourages people to spend more time in shopping districts, thereby making it more likely that they will spend money (White & Gray, 1996, p. 243). Another reason Japanese people spend a large amount of time away from home is because they often live in cramped conditions, so cannot easily invite friends to visit them. Since

[41] For a historical overview of the Japanese people's relationship with food, see Ashkenazi, M. & Jacob, J. (2003) *Food Culture in Japan*, Westport, CT: Greenwood, p.1-18

living space is limited, it is not possible to spend a huge amount of money on home improvements or lavish furnishings, instead Japanese people prefer to spend money on clothing, electronics and entertainment. An understanding of consumer culture is related to design in that the continual introduction of new products and services causes older products to be seen as obsolete. A slight change in design can sell thousands of new products, igniting a desire to consume without any specific need.[42] The desire to conspicuously consume highly visible products including handbags, wallets and mobile phones, is clear from the sheer number of shops selling these products and other lifestyle accessories. Department stores stock the entire ground floor of their shops with bags, wallets, towels, umbrellas and gloves, likewise, consumer electronics outlets will often have mobile phones set up in the entrance or on the street, with small items such as MP3 players and cameras also on the ground floor. This indicates that small, portable items are important revenue generators for Japanese retailers.

**Japanese Consumers and the Ethereal**

A substantial proportion of Japanese culture revolves around appreciation for the ethereal. The importance of changing seasons and the rituals and festivals associated with this are a critical part of the Japanese lifestyle. Weather maps chart the progress of cherry blossoms from the south west to the north east of the country. Food changes according to the season and the availability of ingredients (Asquith & Kalland, 1997, pp. 199-203). In short the Japanese embrace change in the physical world around them, a useful trait for a nation with extremes of climate and weather. An affinity for the ethereal means that a large proportion of young Japanese people are extremely fashion conscious and tend to be quick to adopt fads, only to abandon them a short time later (Richie, 2003, p. 48). Off-duty clothing is one of the few ways in which young Japanese are able to retain a modicum of individuality, as they are required to wear strictly enforced uniforms for most jobs and educational establishments. Another outlet for personal expression is the customization of

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[42] In Japan, age has traditionally been associated with wisdom and experience and is therefore revered. The seniority based employment system as well as the *senpai* (senior), *kohai* (junior) arrangement that exists throughout Japanese society, instills respect for the elder, more experienced members of a group. For more reading on this see Yoshimura, N. & Anderson, P. (1997) *Inside the Kaisha: Demystifying Japanese Business Behavior*, Boston, MA, Harvard Business School Press, p.195-198

possessions such as the mobile phone (Richie, 2003, p. 34). It is not unusual to see teenaged girls with multiple straps and trinkets hanging from their phones, with the handsets themselves having been customized with stickers and nail varnish. Customization can now be taken a step further with downloadable operating systems, with multiple sound and colour combinations available, though this is based on the author's observation as there is little analytical literature on the subject of mobile phone customisation, though the phenomenon is described by PingMag, a Tokyo based, Japanese/English bilingual magazine on art and design (Ayana). Judging by the number of websites that mention デコ電 ,or deco-den (meaning decorated phone), is certainly popular among certain demographics in Japan.[43] The relationship between individuality and customisation will be explored further in Chapter 4.

**Baby Boomers**

As in many countries, the Japanese population grew significantly after the war. This created a generation, known as the Baby Boomers, who came into the workforce in the early 1960s, enabling the manufacturing industry to expand rapidly. As this generation grew older and progressed through the seniority based system, they commanded ever greater pay and benefits eventually creating a top-heavy corporate structure. The Baby Boomer generation remains an important economic influence, many of whom have either reached or are reaching retirement age in the latter half of the 2000s. These pensioners, will have significant disposable incomes compared to those a few years younger, whose pay and benefits did not grow as significantly, and whose companies do not necessarily support them with corporate housing and other perks that were common during the period of rapid economic growth. This is significant because these consumers demand specially tailored products that are suitable for their age group. As they have not grown up surrounded by computers, they are less confident in using technology than younger people and given the high sales figures for pensioner specific, easy to use products that are available on the market generally not ashamed of this. Comparing this to the UK consumer electronics market, where there are few

[43] A Google search in Japanese (15/11/2009) revealed more than 800,000 webpages that mentioned deco-den, and around 650 images. Bearing in mind that in 2008 only around 5% of web pages on the web were in Japanese, compared to 70% in English (http://scientificpsychic.com/blog/?p=97) this is a significant figure.

mainstream products specifically targeted at the older consumer, reflecting the different cultural attitudes towards older consumers in Britain and Japan (Buckley, 2002, p. 106). See Chapter 3 for more information about mobile phone handsets and services designed specifically for older consumers.

**Young Women**

Young women drive material consumption in Japan. This is clear from the vast numbers of dedicated fashion stores selling clothing and accessories. Luxury Western brands are particularly prized by young Japanese women, who value their quality and prestige. Advertisements often feature famous Western models and actresses, whose white skin is seen as the ideal. Whitening cosmetic products are ubiquitous as Japanese women pursue their dream complexion. This preference also precludes them from sunbathing, or even relaxing outdoors without several layers of clothing. It is common to see Japanese females covered up from head to foot on sunny days. Most white British women, and more recently men, by contrast enjoy tanning and will spend time and money visiting tanning salons, especially during the winter.

Japanese women, spend a great deal of their leisure time shopping. It is estimated that around 70-80% of shopping is done by women (Linhart & Fr¸hst¸ck, 1998).[44] Urban Japan offers numerous high density retail outlets with a huge selection of boutique, chain and department stores, but few green spaces, beaches or plazas. Shopping appeals for a variety of reasons; shopping areas are safe, clean and well served by public transport, cinemas are expensive, and because Japanese homes are generally cramped, staying in is not an attractive use of time. The shopping experience in Japan is pleasant, with customers being treated with the utmost respect and attentiveness. The appeal of urban shopping districts is enhanced by an array of speciality restaurants and cafes, where friends meet to chat and to try unusual delicacies. Information on these restaurants can be found in Walker magazines, or on websites such as Gurume Navi (more information in Chapter 3), as well as on numerous food and drink related television programmes. Walkers are similar to the

[44] Linhart, S. & Frühstück, S. (1998) *The Culture of Japan as Seen Through Its Leisure*, Albany, NY: State University of New York, p.10

*Time Out* series, but, reflecting typical Japanese leisure activities, concentrate largely on shops, restaurants and hot springs. Due to the layout of Japanese cities, it is necessary to provide detailed information on the location of shops and cafes, which are often hidden away in back streets and can be several floors up.


**Illustration 4.** Location instructions for a restaurant featured in Kyushu Walker. In order to make navigation easier, traffic lights and buildings are named, as well as stations, bridges, but streets are rarely named in Japan. Cities are divided into administrative areas called Ku, which subdivide into smaller named areas, which are then split into Cho. Because of the lack of street names and house numbers, it is difficult to navigate accurately in a Japanese city.

Shopping in Japan is something that has been aided by the mobile phone, which can be used to retrieve the latest information on brands, new shops and download vouchers. It is also an essential tool for meeting up with friends in crowded areas. Mobile phones also serve as a product around which multiple peripheral products have been developed. Many of these are specifically aimed at young women, with decorative straps, stickers and cases providing physical products to decorate handsets as well as downloadable music, artwork and animations to personalise the user interface. The culture of mobile phone customisation is investigated further in Chapter 4, as it originated in Japan, but has not emerged as a significant trend in the UK.

**Leisure**

It was once rumoured that the Japanese spend less time on leisure than Westerners. Leisure in Japan is simply a slightly different concept to its manifestation in other part of the developed world. Television is popular, as are video games, but there are also several uniquely Japanese forms of leisure including tea ceremony practice, creating print club stickers and *pachinko*.[45] All of these forms of leisure are typically experienced outside of the home. There are numerous opportunities

[45] Pachinko is a pinball-like gambling game

for self-improvement, with English conversation schools, various forms of traditional arts and cram schools on offer at every major transport hub as well as several minor ones. Though self-improvement might not appear to be particularly leisurely, it serves the purpose of helping Japanese people to make new friends and escape from the rigors of work and home life. Other types of leisure include, relaxing at an *onsen* (hot spring), hiking and attending festivals. Though this list may include activities that are not popular in other countries, the fact that Japanese people spend considerable time and resources on enjoying themselves is important to the understanding of the culture.

A large proportion of time is spent outside the home. This is particularly true for men who typically work long hours, eat out, either alone or with colleagues, and often go out drinking after this. In this environment, knowing the time of the last train is crucial to ensure that the businessman can get home safely. However, an industry of capsule hotels, usually located near to major stations, has sprung up for men who have missed this train and need a cheap place to sleep, before returning to work in the morning. Married women on the other hand, spend a large proportion of their time in or near to the home, particularly if they have a child. Japanese cookery is labour intensive, and it takes women at least an hour to prepare dinner, not to mention the time spent shopping for ingredients, which is done regularly due to a lack of suburban supermarkets with large car parks suitable for buying an entire week's worth of groceries. It is clear from the small trolleys and baskets in the supermarkets, that food shopping is meant to be done several times a week.

Although access to the countryside is straightforward thanks to Japan's comprehensive road and railway infrastructure, it lacks the allure that is attached to the British countryside with its historical villages and rolling landscape. The Japanese landscape is mountainous with forests covering around two thirds of the land.[46] This however, makes it largely inaccessible to all but the most intrepid adventurers. However, thanks to generous government funding, particularly during the

[46] 67% as calculated in 1995, Khan, P.P. & Gilbreath, D. (2005) *Japan in the 21st Century: Environment, Economy, and Society*, Lexington, KY: University Press of Kentucky, p.26

years of high economic growth, ambitious construction projects vastly improved the transportation infrastructure, allowing motorists and rail travelers easy access to previously remote areas.[47]

Going for long drives, is a popular leisure activity in Japan. The destination is usually a restaurant or hot spring in the countryside. Hot springs or *onsen* are extremely popular for all ages, about which there is a wealth of information available in magazines such as the Walker, which is available for a number of cities and regions nationwide (Tokyo, Kyushu etc.) in physical, paper form as well as online and as a mobile website. Many handsets now also come with in built GPS which can be used to navigate through Japan's complex road systems. More rudimentary mobile phone based mapping systems are also available, based on triangulation with phone masts, these are not nearly as accurate as GPS, but are helpful for basic urban navigation.

Mobile phones facilitate leisure activities due to their role in social communication, and provision of information via the internet. Japanese handsets have long been designed to maximise screen size and usability for internet and messaging functions. The ability to create photographs and videos that can be shared with friends and family, further enhance the application of the mobile phone as a leisure product. Though originally designed to be a business tool, mobile phones have become increasingly geared towards ordinary consumers, who rarely use them for work, but instead use them to coordinate their leisure time. Japanese consumers were at the forefront of this shift, mainly as a result of them having early access to the mobile internet.

**The Japanese Writing System and Design**

The complexity of the Japanese writing system is relevant to Japanese design in general and by implication the design of mobile phones. This section sets out to explain Japanese script, and how it has influenced visual culture. The majority of its characters are ideographic, each having a meaning made up of the compound of meaning conveyed by the different parts of the character.

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[47] During the economic downturn, these construction projects have become politically contentious, as the media have begun to scrutinise building projects that appear only to benefit construction companies, and the politicians who receive bribes in return for winning the contract. Voters in remote areas remain in favour of these projects as they benefit from the jobs that construction creates. Khan, P.P. & Gilbreath, D. (2005) *Japan in the 21st Century: Environment, Economy, and Society*, Lexington, KY: University Press of Kentucky, p.320

The neurological processes required to understand these visual clues is different from those required to understand sound-based writing systems. Characters are written in a pre-determined order which, when repeated a number of times becomes part of the kinetic memory. Due to the intricate nature of the characters, learning to write Japanese enhances the ability to draw, whereas the acquiring the skills necessary to interpret the complex meanings within the individual and compounds of characters builds sensitivity to visual clues (Leong & Tamaoka, 1998). Since Japanese consumers process information in a different way to those with a phonetic script, products and services must be designed in such a way that they complement these differences. The following pages explain Japanese script in more detail.

Written Japanese mixes ideographic characters known as *kanji,* which are largely made up of smaller meaning based components, and sound indicting letters from either the *hiragana* or *katakana.* Each kanji has several readings, and even different meanings, depending upon what surrounds it (see chart below).

**Table 1.**

| Kanji | Readings | Meanings | Examples |
|---|---|---|---|
| 本 | hon, moto | book, root, counter for long thin things | 日本, nihon, Japan; 本屋, honya, book shop; 電車二本, densha nihon, 2 trains |
| 私 | watakushi, watashi, shi | me, private | 私, watashi, I; 私立, shiritsu, private (not state funded) |
| 下 | kuda, he, sa, ka, ge, o, shita | descend, under | 下品, gehin, vulgar; 下りる, oriru, to descend; 下, shita, under |
| 休 | yasu, kyuu | rest | 休み, yasumi, break, 休暇, kyuuka, a day off |

Nouns native to the Japanese language are usually made up of either a single or combinations of *kanji*, making them easy to break down into constituent parts. These are combined with *hiragana*

and *katakana*, with *hiragana* used in words native to Japan and *katakana* used for adopted or foreign words. Children learn a set number of *kanji* every year as defined by the Ministry of Education, Culture, Sports, Science and Technology or MEXT (see Table 2. for the first grade *kanji*). Since the *kanji* are ideographic, they are initially taught using imagery. This helps children to associate what they are learning with a real object.

Children learning to read and write English need only learn 26 lower case and their corresponding upper case equivalent. However once they have mastered the letters they must learn the rules determining spelling and pronunciation that are not phonetic and often cannot be easily explained. The English language is further complicated by the integration of several other languages in its development, with words coming from Latin, Greek and Germanic roots, making meanings of specialist language difficult to guess. Robin Gill compares English with Japanese by giving the example of ornithology, which requires the reader to know the Latin for bird where in Japanese they would be able to work out the meaning from the three very commonly used *kanji* 鳥類学,

which broken down means bird type study (R. Gill, 2004, pp. 122-127). There are many other instances whereupon meaning can be inferred from a knowledge of *kanji* alone, making it an invaluable resource for understanding Japanese.

**Table 2.**

*Kanji* are learnt in order of difficulty and frequency of appearance in Japanese text. http://www.learn-japanese.info/kanjifirst.gif accessed 12/06/2008

Writing is learned in a predetermined stroke order, with each kanji written multiple times and in different word combinations, so that pupils memorise the visual, contextual and the kinetic process of writing (see Table 3.) (Kess & Miyamoto, 1999, pp. 78-79). The ideographic nature of Japanese script means that it is processed in a different way to phonetic scripts. As such the left hand side of the brain is involved in processing *hiragana* and *katakana* whilst the right side of the brain is involved in processing *kanji*. Since they are well practiced in symbol recognition, the Japanese are adept at processing visual clues such as diagrams, comics or maps and tend to prefer these over words (Lewis, 2003, p. 135).

**Table 3.**

Strokes follow the general rule of top to bottom then left to right. Red dots indicate the start of each stroke. http://infohost.nmt.edu/~armiller/japanese/strokeorder.htm accessed 12/06/08

Though undoubtedly difficult to master, it is likely that the Japanese writing system offers users a cognitive advantage over those who are only able to understand phonetic systems. Multiple script types forces users to process the language in more than one part of the brain (Coderre, Filippi, Newhouse, & Dumas, 2008). It is therefore likely that, the advantage gained in visual processing and aesthetic observation has influenced Japan's success in product design. This advantage being, that they are able to design products that can be appreciated by a less visually aware consumer as well as one who has mastered both phonetic and visual scripts. In terms of the development of mobile phone handset design, due to its complexity, the Japanese language required the early development of screen and language processing technologies which were not necessary in order to read and write simpler European scripts. This meant that Japanese handsets had higher definition screens at an early stage enabling them to display more complex graphics. This allowed Japanese manufacturers and networks to develop more sophisticated products and services with a greater range of functionality, and thus gain a head start over Western manufacturers.

**Comparing Japanese and British Culture**

Japanese culture differs from British culture in a number of respects. However, similarities between the two countries are also observable. For example, due to being island nations, the Japanese and

the British have difficult political and cultural relationships with the continents they are closest to geographically. Both countries have strong political, economic and cultural ties with the United States, and are to some degree reliant upon its military power, though this is more true for Japan than for the UK. This relationship with the United States can be partly attributed to relative physical proximity and the vulnerability of the two island nations, who both have their share of historical enemies.

Culturally, Britain shares more with the United States in terms of language, political influence and arts, whereas, due to the legacy of the occupation following the Second World War, Japan has an education system, and several other institutions that are loosely based on the US system. However, in the author's direct and extensive experience, Japan and Britain have some very similar cultural attributes which distinguish them from the United States. Both countries exhibit a reverence for politeness and have an ingrained class system with a long history and comparatively little social mobility. By comparison, the United States has a much newer class system, based upon money, and a culture of entrepreneurship which allows people to fail without shame. Japan and Britain also have secular populations in comparison to the United States, meaning that political affiliations are less likely to be formed based on a candidate's religious views; this is despite the Church of England's continuing place in British politics.

**Conclusions**

Contemporary Japanese society is shaped by its geography and history. Within this cultural environment the mobile phone has become a prominent feature of a modern urban lifestyle. The companies that manufacture and market mobile phones to Japanese consumers are constantly upgrading and refining functions and features to create new consumer desires and encourage them to buy new products. The Japanese consumers are different from those Britain in terms of their demands and expectations, with British consumers in general having lower expectations and being less demanding. As discussed in the language section of this chapter, it is likely that this is partly due to the British consumer having less awareness of the detail in the world around them,

whereas Japanese consumers are brought up with a high degree of sensitivity to detail. The high population density in Japanese cities requires a tolerance of others which has been fostered since childhood as part of an affinity for, as well as a dependency upon the group. This dependency upon a group means that the mobile phone is particularly useful product for Japanese consumers, who may feel more secure in the knowledge that they are able to contact others at all times. Written Japanese is visually expressive, whereas the spoken language often relies upon inferred meaning. This helps to explain the Japanese affinity for the email for social situations and face to face meetings for business. The mobile phone facilitates social life by allowing informal contact to be kept with a large number of friends via email, without necessarily committing to meet. Although Japan has absorbed a substantial amount of European and North American cultural output, including clothing, arts, music and, less easily measured behavior, this assimilation is on Japanese terms, and it is rare that a cultural meme is absorbed without any adaptation to local tastes. It is possible to find examples of this partial absorption everywhere in Japan. A few examples of this partial absorption are illustrated below.

**Table 4.**

| | | |
|---|---|---|
| Right: Japanese kindergarten children wearing their uniform. Note the old fashioned styling of both the hat and the tunic.<br><br>Centre: A Japanese post box in Gion, Kyoto. This model is very similar to older models of the British Royal Mail boxes. |  | Below: Canned coffee, a common site in Japanese vending machines, it can be bought hot or cold depending on the season. Coffee drinking is common throughout the world, but in Japan the range of coffee products is extensive. |
|  |  |  |
| Above: Two types of soft ice cream in one cone, the green is green tea flavour and the purple is sweet potato flavour. Soft ice cream is available in the UK, but usually only as vanilla flavour. |  | Left: Street scene from Asakusa, Tokyo. The street is narrow and cluttered with wiring. Though there are elements of Western design in the buildings, it is distinctly Japanese. |

In terms of mobile phone design, the partial absorption of Western ideas and techniques by those who have studied design in Europe or the United States, is combined with the Japanese preference and requirement for detail. Those who brought what they had learned back to Japan as well as the industrial designers who were invited from the United States, contributed to the development of Japanese design as they disseminated their knowledge. These Western ideas were then taken and adapted to suit Japanese tastes, as well as the needs of the export market, producing somewhat similar, yet also distinctly different electronic products. The history of the mobile phone itself will be discussed in more detail in the next Chapter.

# Chapter 3: History of the Mobile Phone in Britain and Japan

This chapter gives an overview of the growth of the mobile phone covering the 1980s, 90s and the first ten years of the 21st century. Each major advancement is analysed in terms of its effect upon the design of the product and the consumers who use mobile phones. The general societal impact is covered in this chapter, but Chapter 4 provides a more in-depth analysis specific social phenomena related to the mobile phone.

The complex product that we know as the mobile phone began simply as a mobility tool allowing people to keep in touch whilst they were on the move. Its original remit was to make and receive calls in exactly the same way as a conventional telephone. The mobile phone only became a consumer product after digitalisation. Digital technology has enabled the development of complex features, changing the mobile phone from a portable telephone into a sophisticated computing device. The drive behind the rapid advancement of mobile phone technologies, is the intense competition between manufacturers, who are keen to ensure that their product is at the cutting edge of technology. In Japan and Korea, electronics manufacturers tend to produce a wide range of products, including televisions and personal computers, which allows them to use the technologies they develop in multiple products. This is not the case for Western manufacturers such as Nokia whose businesses focus primarily on the communications market, putting them at a disadvantage when it comes to acquiring the most up-to-date technology. As will be discussed later in the chapter, Western manufacturers have managed to overcome their relative technological lag through innovative design and the ability to read their own markets. The intense competition, particularly with market share giants Nokia, caused Japanese manufacturers to pull out of the European mobile phone market in the early 2000s. The speed with which handset and network technology has advanced, has created a fickle consumer base who are always looking to upgrade their product, despite the fact that their present handset is still perfectly functional. Mobile phones are unique among electronic products in terms of how frequently they are replaced, a phenomenon

caused by a combination of, rapid technological advancement, handset subsidies by networks and the link between mobile phones and fashion (J. Katz & Sugiyama, 2006).

The mobile phone markets in Japan and Britain are very different, but the telecommunications industries in the two countries share similar backgrounds. Both were originally publicly owned monopolies which were privatized in the 1980s, NTT (Nippon Telegraph and Telephone) in 1985 and BT (British Telecommunications) a year earlier in 1984. NTT formed the mobile phone branch of its operations NTT Docomo in July 1992, the name being an abbreviation for ***Do*** ***Co****mmunications Over the* ***Mo****bile Network* (NTT Docomo, 2001, April 10), but also a word meaning anywhere in Japanese. In Britain, Vodafone launched its first analogue network on 1st January 1985, and by the end of the year it had 19,000 subscribers (High Street Names, n.d.). In Japan also, with an average of 80,000 new subscribers per year for the first 13 years of its existence (Ito et al., 2005, p. 22),[48] prohibitive pricing meant that growth was considerably slower than expected (Beck & Wade, 2003, p. 79). In the early days of mobile telephony in both Japan and Britain, the majority of the customers were businessmen. The cost of handsets, network subscriptions and calls were high and the handsets were heavy and bulky . Added to this was the fact that the coverage was poor; it was restricted to urban centres, and even there, only along major roads, in line with the initial market being mainly for car phones (Agar, 2003, pp. 70-89). However, by the mid-1990s prices were beginning to drop dramatically and network coverage was improving, turning the mobile phone into a consumer product. A drop in the price of calls and handsets internationally was driven by deregulation and the excessive laying of intercontinental optic fibre cables (Friedman, 2006, pp. 71-75), and this was pushed even lower by the economies of scale enabled by a rapid growth in consumer base. At this time sufficient infrastructure was not in place to cover entire populations in Britain and Japan, and it was because of this that the overcrowded Japanese metropolis of Tokyo proved to be at a distinct advantage in terms of offering a reliable service to new consumers.

[48] NTT's first cellular network was launched in 1979, beginning with car phones, then releasing its first mobile phones in 1985.

Tokyo's densely populated high-rise housing, famously ridiculed in 1979 (Christopher, 1983, p. 122; Starrs, 2001, p. 1) by the then EU Commissioner, Sir Roy Denman as "rabbit hutches" (Andressen, 2002, p. 160), proved to be an ideal testing ground for a mobile phone infrastructure. Launched in 1996, the Personal Handy-phone System or PHS was cheap and reliable, provided that calls were made relatively close to a public phone box that had been fitted with a transmitter.[49] With around 35 million potential customers living in the Tokyo metropolitan area, the majority within tens of metres of the nearest phone box, the cheap and unobtrusive PHS system was an instant success. The PHS provided an affordable service, with relatively small and light handsets compared with the business mobile phones in use at the time, and strong battery performance (up to six hours talk time in 1997). This system therefore proved to be perfectly placed to appeal to younger people, many of whom enjoy acquiring and using the latest gadgets, have grown up surrounded by technology, and are therefore more comfortable using it than their parents' or grand parents' generation. The system had its limitations however; the PHS could not be used if traveling at more than about ten kilometres per hour, and does not work well indoors. Therefore, once the *keitai*[50] became more affordable, people began to switch to using this more reliable system. Even after the mass market adoption of CDMAone and GSM capable keitai, Tokyo remained a testing ground for products and services at the cutting edge of mobile telephony. The worlds first 3G network,[51] NTT Docomo's FOMA, was first rolled out in Tokyo in October 2001 (Steinbock, 2005, p. 113).

**Markets and Consumers**

This section explains the fundamental differences between the mobile phone markets in Britain and Japan, and how this affects consumers. Due to a lack of international cooperation, the

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[49] Calls transmitted to the phone box from a PHS phone were channeled through the landline network

[50] *Keitai,* meaning portable, is the standard mobile phone system used across the globe that uses CDMAone or GSM wavelengths, as opposed to the PHS system.

[51] 3G stands for third generation, and is a standard for mobile phone networks which can handle more data than either CDMAone (Japan) or GSM (Europe)

Japanese mobile phone market developed independently to those in the rest of the world. Before 3G became a global standard, Japanese networks worked on a different frequency range to those in other countries. Therefore, the majority of handsets did not work outside Japan (Agar, 2003, pp. 56-69). This is indicative of the fact that there are comparatively few Japanese who regularly travel abroad. Only 17 million Japanese (out of a total population of 127.7 million) left Japan in 2005 (Statistics Bureau, 2007a, p. 11),[52] compared to 66.4 million visits abroad by UK citizens in the same year, adding up to more than the total population of the United Kingdom (National Statistics Online, 2005). This low rate of foreign travel can be explained by the relative isolation of Japan both in terms of distance and culture from tourism friendly countries in Europe and North America, a thriving domestic tourism industry (Bardgett, 2000),[53] and a lack of holidays long enough to justify a journey abroad. In the years since the collapse of the Bubble Economy in 1989, fewer Japanese have the disposable income to travel abroad. As the demand for compatible handsets has increased and the cost of the technology has come down, more and more handsets can now be used abroad.

Japan's demographic change has become topical in recent years. A rapidly aging population has created a generation of elderly consumers. In a country where more than 20% of the population were over 65 in 2005, and with this figure projected to rise to 35% by 2050 (Statistics Bureau, 2007b, p. 5), older people are being embraced by mobile phone networks as a growth market. Designs specifically targeting ageing consumers have been in existence since 1999, with the introduction of NTT Docomo's Rakuraku range of phones. With their simple designs and ease of use, Rakuraku has proved to be a highly successful marketing strategy for Docomo. As mentioned on page 122, Tu-Ka has also enjoyed relative success with its easy to use handsets. At its peak the company had around 3.5 million subscribers (The Economist, 2007d). Currently led by Fujitsu and Mitsubishi, Japanese companies have been developing mobile phones specifically designed

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[52] This also shows that visits by Japanese to foreign countries was higher in 2000 than in 2005, indicating that there has been very little in the way of increased travel during the prolonged recession.

[53] According to the OECD National Tourism Review of Japan, tourism related spending is estimated to generate around 5.7% of domestic production in Japan. Tourism accounts for 11% of GDP and 8% of employment worldwide, but in developed countries this is usually considerably less.

for elderly citizens unfamiliar with modern technologies since 1999.

Mobile phone penetration in Japan stands at around 75% (07/2007), which is considerably lower than the United Kingdom where penetration has reached 115% (07/2007), with many British people using more than one phone or SIM card (The Economist, 2007e). The gap is likely to be due to the lack of Pay-as-you-Go (PAYG) availability in Japan. Japanese network providers have experimented with PAYG, but it has never become popular with consumers, since the majority of the Japanese population have bank accounts, and there are few concessions made to the small minority of foreign visitors or residents, for whom PAYG would be particularly convenient.[54] Softbank still offers PAYG, but it is almost impossible to obtain the phone without showing a variety of documentation, which many short term visitors and immigrants do not possess, cutting off a large proportion of the potential market for this type of payment system. Legislation makes it difficult for foreigners to obtain the same rights as Japanese citizens, and the documentation required to buy a mobile phone, whether on a contract or PAYG system is just one example of the sort of red tape encountered on a daily basis. For foreigners without the necessary documentation and the homeless it is very difficult to subscribe to a mobile phone service and this creates a sort of mobile-less underclass. Perhaps this is unsurprising in a country where getting connected to a land line costs in the region of £320 (Fukui Japan Exchange Teaching Programme, n.d.), in contrast to the UK where connection is usually free of charge providing the residence already has a suitable phone line. Both British and Japanese mobile markets are now mature, and consumer numbers have stabilised. The next section analyses the history of the mobile phone globally, focusing on developments in Britain and Japan.

**The Transition to Mobile**

Telephony has enabled a boost in economic output, due to the relative transaction speed between a telephone call and sending traditional post. It has also changed the way we relate to the people

[54] PAYG SIM cards are recommended for travelers in a number of travel guides, as they are cheap, require no long term commitment and can be inserted into any unlocked mobile phone.

around us. By providing a way to connect with people whilst on the move, the mobile telephone has further added to our number of productive work hours. However, more importantly, it has changed the way we communicate, and our use of time.[55] Jon Agar compares the uptake of the mobile phone to that of the pocket watch, which also started out as a status symbol, but eventually became a mass market product. This was due to a change in society following the industrial revolution, before which time had not been as important (Agar, 2003, pp. 3-5). The mobile phone, serves as an equally potent symbol, representing of the digitalization of society, and becoming ubiquitous within an extremely short timeframe.

**Design history of the push button telephone**

The concept of a push button telephone was first introduced in 1948 by Western Electric. The configuration of the buttons was originally laid out in two rows of 5 (see left hand photograph Illustration 5.). Note that the buttons already have alphabet written on, with the exception of the letter Q. Western Electric finally started selling the push button phone in 1962, using the now familiar three column layout for the buttons. In Japan the push button phone did not go on sale to

| 1948 prototype | 1960 prototype | 1962 model |
|---|---|---|

**Illustration 5.** Early push-button telephones (DeRouchey, 2006)

the public until 1969 (DeRouchey, 2006). The push button phone was easier to use than the old fashioned dial phones, and allowed for additional features such as touch tone to be introduced. Touch tones are an international code developed in order combining two frequencies expressed

[55] Social changes resulting from the ubiquity of the mobile phone be discussed in depth in Chapter 4

horizontally and vertically so that a different frequency is produced by each button relative to its location.

The introduction of buttons replacing dials can be seen in a variety of consumer electronic products, including the television and even the radio. More recently, buttons are being replaced by touch-screens which are more versatile, and can eliminate the need for cumbersome interfaces. Touch-Screens further reduce the number of mechanical parts required, which should reduce maintenance costs. The disadvantage of touch-screens is that they lack the physical feedback mechanisms that can be felt when using buttons and dials. This however can be overcome to some extent using haptics, a technology that sends out a physical signal, usually in the form of a vibration or pulse, to a user when they have touched an area of the screen designated as a button. The Blackberry Storm, the first commercial touch-screen handset manufactured by RIM, featured haptics.

**Illustration 6.** NEC Push Phone, Japan, 1969
Note the similarity between this and the Western Electric model from 1962. Also, the star and hash keys have been introduced either side of the 0. (Park.org, n.d.)

**Technological Barriers**

The design of technology based products such as the television, the vacuum cleaner or the mobile phone, rely heavily upon technological advance. Possibilities for style and shape are limited by practical considerations such as size, weight, battery life and cost, as well as ergonomic considerations including, function, shape and how the product is intended to be used.[56] The earliest British mobile phone handsets, were large and heavy enough to be referred to as “bricks”

[56] These constraints have been loosened somewhat since the introduction of microelectronics, increasing the number of functions that can fit into a single product. However, in the case of the mobile phone, practical considerations including button and screen size and, above all, cost must be weighed up in the design of a new device. Compromises will always have to be made on some aspect of the design in order to accommodate the technological and cost feasibility.

by consumers (Fling, 2009, p. 4). It was not until the mid-1990s, that they became small and cost effective enough to appeal to a broad consumer base. In Japan the first mobile phone, manufactured by Panasonic and sold by NTT in 1985, was actually a car phone with a strap (Illustration 7.); the entire unit could be removed from the car and worn over the shoulder (Kids Web Japan, n.d.). In both Japan and the UK, technology remained far behind the vision of a perpetually connected world. As batteries became more powerful, the size and weight of handsets began to decrease, making the phone more practical to carry. However, it was the introduction of second generation mobile phone network, now referred to as 2G, in 1993 that provided a major catalyst for mobile phone consumption, despite the fact the network coverage was concentrated in urban areas until the mid-1990s (see Illustration 8. for an example of an early Japanese 2G handset). This gradually improved as the consumer base grew and demand for better coverage increased. Network coverage in both Japan and the UK now stands at over 99% of the population.[57]

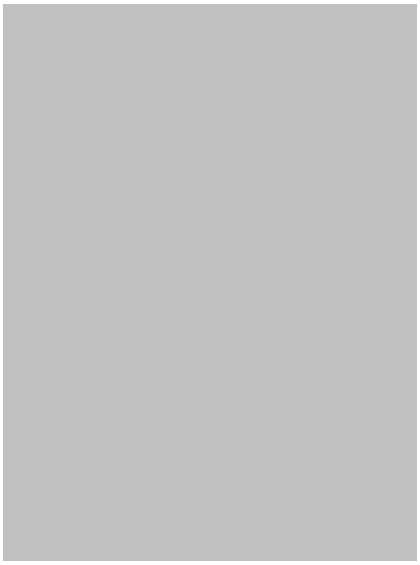

**Illustration 7.**

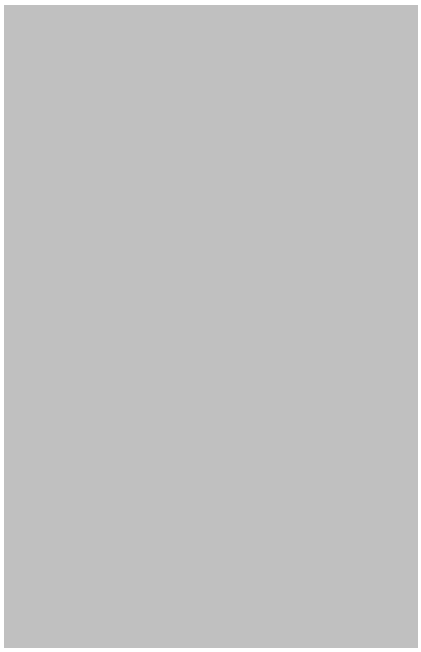

**Illustration 8.**

Economies of scale created by the growth in popularity of the mobile phone have forced the cost of these technologies down. Shapes and colours are now much more varied with the clamshell design remaining the most popular style of handset in Japan. The British market has a much greater selection in terms of form, but compared to Japanese phones, British consumers have much more restricted colour choice. Preferences for particular styles, colours and or brands are formed, particularly by older consumers.

[57] There are still some places, such as the Scottish Highlands or remote islands, where it is simply not economical to install a base station. The 99% estimate is based upon self reporting by the mobile phone networks, which may be a little optimistic, but it is the only data available.

Younger users are more trend and functionality conscious, and will tend to choose their upgrades for these reasons rather than because they have a strong sense of brand affiliation (Steinbock, 2005, p. 178; The Carphone Warehouse, 2006, pp. 10-11).

**Illustration 9.**

**The evolution of the mobile phone in the UK to 2007**
The range of devices is not very comprehensive but this image does show how handsets have become smaller and screens have become larger. It also illustrates to some extent, the evolution of Nokia's keypad designs, please note that the right hand phone is not a Nokia. A more comprehensive image would show the different forms including flip, slider and touch-screen phones (see page 139) and would include more manufacturers. (Celtnet, n.d.)

Because the Japanese handset market is controlled by the networks and not by manufacturers, there is a great deal of collaboration between the two when working on new models. When NTT Docomo was developing FOMA, its 3G service, it worked closely with Panasonic to develop the first 3G compatible handsets. AU also works closely with manufacturers when developing new ranges, such as the Lismo phones with built in MP3 players and PC compatibility for faster music downloads. This tends to enhance usability, as handsets can be designed specifically for the services they are intended to use. Handsets sold in the UK, on the other hand, are mostly designed to be used by subscribers from a number of different networks. This makes it possible for manufacturers to utilise economies of scale in order to sell the handsets at a reduced price and to pay for expensive research and development. However, it does detract from usability, since each network is set up differently.

## Overview of Telecommunications Industries

### Japan

The Japanese government, in collaboration with the electronics industry, have a tradition of heavy investment in research and development (R&D) stretching back to the period immediately after World War II. In 2005, the investment in R&D for electronics and communications stood at 10.5 billion pounds (Statistics Bureau, 2008). When the mobile phone became mass consumer product in the 1990s, competition for uptake by the major networks and then for market share intensified between manufacturers. The Japanese market is fast moving and has more stringent quality control standards than Western Europe (Hisa, 2006). Japanese manufacturers have been pioneering quality control procedures for many years. This began to emerge as a characteristic of the export oriented Japanese manufacturers by the early 1960s, having learnt much from Dr W. Edwards Deming, perhaps the best known of the Americans who came to Japan as advisers following the Second World War.[58]

Pricing is one area where the differences in culture between Britain and Japan are significant. Analysing the pricing structures reflects contrasts in the economic and cultural histories of the two countries. The Japanese have a culture of loyalty, which the networks utilise in order to ensure customers do not switch service provider. Up until November 2006, this was reinforced by the fact that it was impossible to port mobile numbers between network providers. Offers such as Family Waribiki (discount),[59] a 50% student discount, and 10% loyalty discount for each year with the same network, mean that the phone bills of Japanese customers continue to drop provided they don't switch network. Another feature of Japanese phone bills is that, rather than offering bundles of text messages and minutes separately, they allocate a specified amount of money within the cost of a monthly package for either calls or internet services. The cost of calls and the amount one is able to use for free depends on the package, with more expensive packages incurring lower

[58] See chapter 2

[59] Family discount allows more than one member of a family choosing the same provider to reduce their collective bill by 50%

calling charges. This model has been copied in the UK by T-Mobile, which introduced a tariff called Flext in 2006 (T-Mobile, 2010). Allowing the consumer to use up credit as they please, rather than assigning them a set number of minutes and texts gives consumers more choice and flexibility. Added to this is the points system, whereby it is possibly to accrue points according to how much one spends each month, and to use these points to upgrade phones or buy related products and services. Intense competition between network providers, and the Japanese tradition of prioritising market share over profit (Woronoff, 1986, pp. 174-180), have been part of the deflation trend that has plagued Japan since the early 1990s. The networks also have considerable power over handset manufacturers, which must compete in order to win commissions from the three main network providers who control all sales and distribution of handsets. The manufacturers are required to provided custom designed handsets to each network, including specified features and functions, in order to meet the required standards and to be marketable as part of a range. To explain this, take, for example, the Autumn 2006 NTT Docomo FOMA 902i range, which all have DCMX, Osaifu Keitai and Push Talk,[60] high-tech functions, which become the core marketing features of the range. By tying each model to a specific network, and by having a six month turnover of handset ranges, the Japanese networks deny the manufacturers opportunities to take advantages of creating the sort of economies of scale enjoyed by Nokia, Samsung and other non-Japanese manufacturers,[61] who are able to produce generic handsets which can be sold to a variety of different networks throughout Europe and North America.

**Japanese Networks**

There are three main mobile phone networks in Japan: NTT Docomo, AU and Softbank. Each controls a significant share of subscriptions, and between them they control nearly 100% of the handset market.

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[60] DCMX is a mobile credit system, Osaifu Keitai is an IC chip based payment system that is connected to DCMX and Push Talk is a low cost walkie talkie type system whereby consumers pay for the number of times they press the call button rather than the length of the call.

[61] Sony Ericsson is an exception, as it is a collaboration between a Swedish and Japanese manufacturing outfits.

**1. NTT Docomo**

Although a cellular network has been operating in Japan since 1979, the Japanese mobile phone as a consumer product began when NTT Docomo split from Nippon Telegraph and Telecom (NTT) in 1992 (Beck & Wade, 2003, p. 82). As the post Bubble recession deepened, there was a sharp fall in new mobile phone subscriptions in the company's first six months. Kouji Ohbochi, a maverick CEO, turned Docomo's fortunes around by dropping subscription fees by half and lowering the cost of making a call to one third of its original price, bringing the mobile phone within the reach of a significant proportion of Japanese consumers, as opposed to the million or so wealthy businessmen who had made up the bulk of the market prior to the dramatic drop in price. Sales of handsets increased dramatically, from around 80,000 in 1993 to 520,000 in 1994, forcing Docomo's competitors to follow suit and lower their own prices. The increase in sales enabled mobile phone networks to take advantage of economies of scale, they were able to lower the price of handsets by 75%, bringing them down to 10,000 yen (£65), well within the reach of ordinary consumers. The increase in users also began to push down the cost of making phone calls. By the mid 1990s, growth was so rapid that Ohbochi realised that the domestic market for mobile phones would soon reach saturation point. With competition on pricing forcing average revenue per user (ARPU) down, further growth would be impossible without changing strategy. In July 1996, Ohbochi posted a full-page advert in the *Nippon Keizai Shimbun*, the Japanese equivalent of the *Financial Times*, calling for consultation with managers from Docomo's suppliers. He wanted to create a product that went beyond a mere communication tool, and would tap into consumers' emotions. It was from this meeting that i-mode, Docomo's highly successful mobile internet service was born (Beck & Wade, 2003, pp. 79-100).

Docomo holds the biggest market share at over 50% (50.3% in quarter 2 of 2009 (NTT Docomo, n.d.-c)). Due to its huge share of the market, Docomo has the financial power to invest heavily in research and development (R&D), enabling it to develop the most advanced technologies. This power is partly due to the company being a subsidiary of the Japanese telecom giant NTT, as discussed on page 41. The designs of NTT Docomo handsets were originally the most

conservative of the three main networks. This is due to the fact that Docomo has strong middle aged and business customer bases and therefore did not feel it was necessary to appeal specifically to the fickle youth market. During the late 1990s and early 2000s, handsets were generally offered in a 3 colour range of silver or white, black and light pink.[62] Analysis of more recent handset offerings suggests that the 3 basic handset colours have not changed significantly. However, in an attempt to capture new consumer types as mobile phones reach saturation point in established markets, Docomo have expanded their design policy. In 2006 Docomo introduced a range of phones designed specifically for children, which come in bright colours and feature child friendly designs (Illustration 10.). Bright colours have continued to appear on an ever wider range of Docomo handsets as the competition for all consumer groups has intensified. In response to this Docomo have divided their mobile phone offerings into several design categories aimed at different consumer profiles. The four main categories are, Style, Prime, Smart and Pro, with Rakuraku and

With a range of child orientated colours and a chunky rounded shape, the SA800i, released in 2006, was the first handset designed specifically for children. Many of its functions however, were added for parental piece of mind. The SA800i features a 100 decibel alarm, and the handset can can be programmed to initiate GPS tracking on the parent's phone when the alarm is activated, or when the child leaves a designated area.

The F801i from Fujitsu, released in December 2008, is the second child specific phone from NTT Docomo. The handset comes with a watch-like device which can be used to locate a lost handset. The F801i is designed by the art director and designer Kashiwa Sato, indicating that NTT Docomo is following AU's lead in using famous designers (see following page).

**Illustration 10.**

[62] However the range and variety of handsets has expanded to some extent since the launch of the FOMA 3G service.

Kids being separate categories. “Style” handsets are marketed at the late teen and young adult market, and given the prevalence of traditionally feminine colours such as pink and lilac, primarily at girls. “Pro” handsets are at the other end of the spectrum, and are aimed at busy career minded people who prioritise functionality and time saving features such as a QWERTY keyboard.

In October 2001, FOMA, the first Japanese 3G service, was launched by NTT Docomo in the Tokyo area. Collaboration between service providers and electronics manufacturers, such as that between Matsushita (CNN Money, 2007)[63] and Docomo in developing FOMA, allowed for a technical leap from 2 to 3G services. Matsushita, Fujitsu and NEC were paid by Docomo to develop handsets capable of providing FOMA services (Taplin, 2007, p. 93). Since then, 3G services have greatly increased in popularity, and have become the standard rather than the exception. The fact that FOMA phones are generally not equipped to handle other standards (unlike many non-Japanese brands with dual, triple and quad band capabilities), means that outside 3G covered areas, FOMA phones are entirely unusable. However, due to heavy investment in infrastructure, the transition a 3G network has been relatively smooth, with supply largely keeping up with demand (3G.co.uk, 2006, November 6).

**2. AU, and Tu-ka from KDDI**

KDDI was founded by Sachio Senmoto in 1983, shortly before the privatisation of telecommunications in Japan in 1984, and has grown to become the second largest telecommunications company after NTT. Senmoto, who originally worked for NTT, was sent by the company to study for a PhD. at the University of Florida, and returned from the United States with a passion for entrepreneurship. Senmoto then announced that he was leaving his secure, lifelong employment to set up a rival company to a mixture of surprise and disbelief. However, the business practices he had learned in the United States paid off, and though regarded as a maverick, he is well respected and successful (The Economist, 2008a).

[63] Matsushita trades under several brand names including Panasonic and National, in 2007 it was ranked 59th in the Fortune 500, and 4th largest electronics manufacturer in the world.

The KDDI PHS system was the first to introduce a text messaging system in 1996. As with later models of the pager, the ability to communicate in written form proved popular with younger consumers, and encouraged younger subscribers to upgrade from the pager to the mobile phone. Text messaging was soon added to the services of the other network providers, as the race to win subscribers intensified (see Graph 2. on page 92).

AU, a subsidiary of KDDI, Japan's second biggest provider of land lines and combination services providing telephone, broadband and cable TV (Fasol, n.d.), AU controlled around 29% of the Japanese mobile phone market in 2008 (Negishi, 2008). Until recently, AU offered students a 50% discount on their bill and therefore attracted a younger more adventurous market. AU's youthful consumer base is reflected in their handsets, which tend to come in bright colours and bolder designs. An emphasis on design has become a calculated attempt to differentiate the AU brand. In 2003 the company revealed the AU Design Project, commissioning famous designers to come up with unconventional handset designs. The first in the series, Naoto Fukasawa's[64] Infobar, was launched in October 2003, followed by designs by Tokujin Yoshioka, Marc Newson and Makoto Saitou (Illustration 11.) (KDDI, n.d.-a).

**Illustration 11.**

[64] Fukasawa is a professor at Musashino Art University.

**Tu-Ka**

KDDI subsidiary, Tu-Ka terminated its service in March 2008 (KDDI, n.d.-d), but is significant for deliberately offering a simplified mobile phone. Tu-ka offered a handset designed specifically for older consumers and sold a phone, made by Kyocera, which looked and operated in the same way as a wireless home phone, i.e. the green call button must be pressed before a number is punched in (3 Yen, 2004). The simple design and ease of use of the Tu-ka made it a popular product for elderly Japanese who are largely unfamiliar with the high-tech products used by their children and grandchildren (Illustration 12.).

**Illustration 12.** The Tu-ka S was the most basic model available on the Japanese market. Designed specifically for older consumers, it functions purely as a telephone, with no screen, or facility to store numbers. The handset's manual was only a few pages thick, which contrasted favourably with the potentially intimidating size of manuals for standard Japanese handsets. The lack of LCD screen and related functions meant that the Tu-ka S could function in standby mode for more than a month (840 hours), making it convenient for taking on excursions or leaving in a pocket or bag.

**3. Softbank**

Formally Vodafone and before that J-Phone, Softbank has the third biggest market share at around 18% (Negishi, 2008). The company has had a number of problems with mergers and acquisitions (M&A): Vodafone bought out J-Phone in 2003 but changed little about the service and even kept the names of many of the J-Phone services.[65] J-Phone collaborated with Sharp, a leading manufacturer of consumer electronics, specialising in screen technologies. They developed the first camera phones, released in 1999, and held onto the lead in camera phone technology, until it became a standard feature around 2002 (Fasol, 1997-Present).

[65] E-mail addresses were changed, which, according to the authors observations caused a great deal of frustration to many consumers.

Japan's third largest operator's fortunes began to change when, in October 2001, Vodafone bought a 69.7% share of J-Phone stock. At this stage subscriber numbers were still growing steadily. However, the change of name to Vodafone in 2004 and the related re-branding of the company, caused the number of new subscribers to drop off, and by the beginning of 2005 there had been an exodus of consumers changing to other networks (Fasol, 1997-Present). Vodafone's mistake, was that in attempting to make use of its global economies of scale, they introduced a range of handsets sold in other subsidiary countries onto the advanced Japanese market, where, beside the offerings from the other networks, they appeared clunky and low-tech (Paprzycki & Fukao, 2008, p. 193).

> "Vodafone's attempt to use the same handsets worldwide was a spectacular failure in Japan, a unique market that is two or three years ahead of Europe in its adoption of mobile technology. Only when Vodafone relented and launched a new range of Japan-specific handsets was it able to halt an exodus of subscribers, in the process, it undermined its own claims about economies of scale" (The Economist, 2006).

As discussed in Chapter 2, the Japanese business environment is very different from Europe and North America, and it was foolish of Vodafone to assume that business models tried and tested in foreign markets would be successful in Japan. On the surface it would appear that Japan has a similar consumer culture to other developed countries, however this is deceptive. As discussed in the previous chapter, Japan has a very different political, cultural, social and economic history, to other developed countries, resulting in a completely different contemporary consumer culture. This is not to say that Western Europe and North America share the same values, but that they are far more similar to each other than to Japan. Vodafone failed to acknowledge this, and paid a high price by being forced out of the Japanese market.

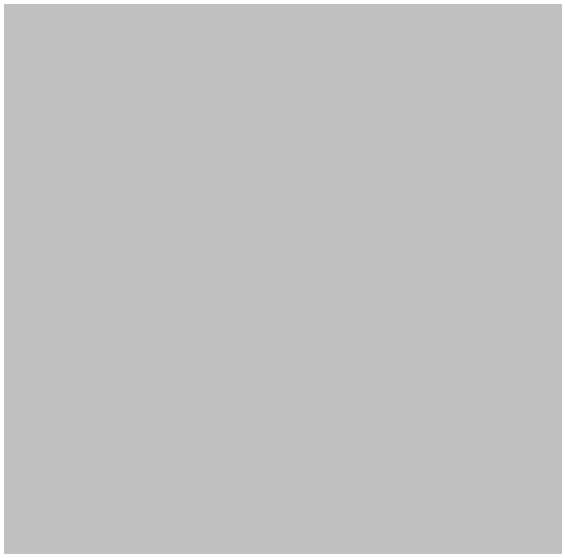
One of the few benefits of Vodafone's experience in Japan, may have been the opportunity to access and adapt Japanese technology for its European markets. Including the establishment of a

mobile internet facility in the form of Vodafone Live!. However, the transfer of its 3G service from Europe to Japan, was not as successful as Vodafone had hoped, and the whole debacle has resulted in huge losses and a great deal of embarrassment for the British company (Netsize, 2007).

Vodafone exited the Japanese market in March 2006 after accepting an offer from Softbank, a telecommunications and media company, with the Softbank brand appearing a few months later in September. Since the takeover, Softbank has shown relatively steady growth, adding 3.5 million subscribers by April 2008 (Telecommunication Carriers Association, n.d.). The lessons learned from Vodafone's experience in Japan, include the importance of understanding consumer needs from a cultural as well as a financial perspective. Value for money is important, but Japanese consumers, particularly the teenagers and young adults who had been a large part of J-Phone's consumer base, also wanted high-tech handsets and services designed to compliment their lifestyles. Softbank understood this, and therefore began offering brightly coloured phones with free iPods, linking their brand to the global Apple phenomena, and therefore attracting young consumers who wanted a fashionable product at a low price. The link with Apple has continued, with Softbank becoming Japan's first iPhone network.

**Summary**

The three main Japanese networks are now competing for an almost stable number of consumers. All potential markets for new consumers have now been tapped, from children to elderly consumers, with specialist handsets being designed for each demographic. The introduction of number portability has enhanced competition, but has not fundamentally changed consumers' reluctance to switch operators since email addresses cannot be ported between networks. Appealing to consumers now requires a greater emphasis on value for money and design. This will remain the case until the next major breakthrough in communications technology.



**Graph 2.** Japanese networks show fluctuating growth throughout late 2005 and 2006. Number portability, whereby consumers' mobile phone numbers can be switched between networks, was introduced in October 2006. It would appear both NTT Docomo and Softbank benefited from this service immediately. However, according to the Telecommunications Carriers Association, since October 2006 Softbank has added 3.5 million subscribers, Docomo, 1.3 million and AU 5.7 million, an indication that NTT Docomo may be losing its dominance to some extent.
Data: (TCA, n.d.)
Graph: ("Change is in the air," 2007)

**British Networks**

The major mobile phone networks in Britain are also dominant forces in Europe. With Vodafone, T-Mobile and Orange familiar brand names in several European countries, the market is dominated by a small number of companies, giving the networks huge handset buying power. It is noteworthy that in Britain three of the four biggest networks were originally subsidiaries of national telecoms companies or are still owned by a national utility. It is only Vodafone that began as an independent company. This is evidence that the European Union has promoted closer ties between European businesses, and that since deregulation there is now considerably less emphasis on the securitization[66] of telecommunications. In 2006 all four of the main British networks had a similar market share at around 14 to 16 million subscribers each, with any surplus being absorbed by Three and Mobile Virtual Network Operators (MVNO) such as Virgin Mobile (Global Insight, 2007).

As mentioned earlier in the chapter, UK networks exert far weaker control over handset design and functionality than their Japanese counterparts. This is because they purchase phones off-the-shelf, based on an estimate of how well a particular model will sell. This approach places less pressure on manufacturers, and reflects the very different business environments of Japan and Britain. As

[66] The term securitised is used to differentiate something that is considered essential for the survival of a state. Securitized commodities include food, oil and weapons. Telecommunications equipment is integral to the infrastructure of many states and has gone through a process of securitisation, particularly during the Cold War.

discussed in Chapter 2, Japanese companies have a history of collaboration and cross shareholding, as well as a collaborative culture. British firms on the other hand, operate far more independently, and take a less consultative approach to decision making, increasing corporate efficiency. Neither of these approaches is necessarily superior to the other. However, in the case of the mobile phone, the Japanese approach does appear to have advantages for usability, whereas the British approach allows consumers greater choice in terms of switching between network providers.

In the highly competitive British mobile phone market, already saturated due to the fact that many consumers own more than one handset, each company tries to differentiate its products and brands from the others. This is more difficult in Britain than in Japan, where network brands are represented by a completely different set of handsets. British networks must offer a package including a high-tech handset, useful services and desirable content. One way of securing a new revenue stream for mobile networks is to offer packages including mobile broadband and laptops. All of the main British mobile phone networks now offer this option to consumers. Laptops, and especially the smaller netbooks, have become cheap to produce, which means they can be sold on a contract basis with inclusive internet browsing, similar to a mobile phone contract. This convergence of communications technologies points to a future whereby the mobile phone and laptop computer effectively become the same product, for evidence of this see Apple's iPad which looks like a larger version of the iPhone. Gradually, in the public imagination, networks are moving away from being solely mobile phone networks to a wider remit of telecommunications networks.

**1. Vodafone**

Formed in 1983, Vodafone launched its first mobile phone network in the UK in 1985, and its first GSM network in 1993 (Vesa, 2005, p. 185). By 2004 Vodafone had more than 200 million subscribers worldwide, making it the world's largest mobile phone group (Pickard, 2007). This British company has established successful operations in a large number of countries, including both wholly owned subsidiaries and partnerships. Observing the success of the mobile internet

services in Japan, Vodafone's entry into the Japanese market via J-Phone, enabled it to launch the 3G mobile internet service Vodafone Live! in October 2002 (3G.co.uk, 2003, March 27). However, as discussed on page 123-4, Vodafone failed to adapt to the competitive Japanese mobile phone market, and was bought out in 2006.

**2. O2**

A subsidiary of British Telecom, known as BT Cellnet until 2001, O2 was bought by Telefonica S.A., a Spanish telecommunications company, in 2006. Between 2002 and 2006, the company's value leapt from £4 billion to £17.7 billion. This, according to Young and Aitken was due to a clever marketing campaign following the launch of the O2 brand in April 2002 (Young & Aitken, 2007). Following its launch, where it outperformed all other mobile networks, O2 became the first British operator with a General Packet Radio Service (GPRS) network, and in 2004 signed a deal with NTT Docomo, to bring i-mode to its 3G networks in the UK, Germany and Ireland (Vesa, 2005, p. 186). However after only two years, O2 announced that they would be fading out the i-mode service due to a lack of subscribers and because of the cost of commissioning compatible handsets (O'Brian, 2007). Though i-mode is an undeniably successful service in Japan, the European model failed to take off for a number of reasons, the main one being its proprietary nature, this meant that separate code has to be written for i-mode sites, whereas WAP based sites are compatible with all networks. O2 misread the demand for a limited service that could not compete for content with similar services offered by other networks. In 2007 O2 became to only UK network to sell Apple's iPhone. The iPhone contract has boosted O2's cachet, but for many it is inconvenient to have to transfer networks in order to obtain the iPhone. The iPhone contract expired at the end of 2009, when iPhones became available on other networks. This should alter O2's market share.

**3. Orange**

Having changed hands several times, Orange was finally bought by France Telecom from Vodafone in 2000 (BBC News, 2000, May 30), Orange now operates in 23 countries throughout

Europe and Francophone Africa (BBC News, 2006, September 27). The fourth entrant into the UK mobile phone market, Orange was launched in the UK in April 1994. According to the Orange website "in June 1996 Orange plc became the youngest company to enter the FTSE-100, valued at £2.4 billion. And by July 1997 Orange had gained one million customers" (Orange, 2010a). Orange's advertising strategy originally used the slogan "the future's bright, the future's Orange" focusing on keeping technology simple, and in 2008 ran the "I am who I am because of everyone" series of advertisements, focusing on the ways in which interactions between individuals influences our lives. As yet it is unclear how this applies to the mobile phone, but Orange maintains its strategy of not including any images or mentions of their products in any of their television advertising. Orange's remains intent on differentiating itself from other operators through innovative marketing campaigns and strategic sponsorship (see Chapter 4 for details).

**4. T Mobile**

T Mobile is a subsidiary of Deutche Telecom, that acquired the British network One 2 One in 1999. One 2 One was re-branded T Mobile in 2002, in line with its mobile networks in other parts of Europe. With around 20 million subscribers in the UK, many of them through MVNO operators such as Virgin Mobile. The company also operates a large network of WiFi Hotspots in coffee shops, airports and on trains which allow users of laptops with wireless broadband, to access the internet whilst away from their home or office (T-Mobile, 2010). T Mobile differentiates itself from other British networks by offering flexible packages similar to those offered in Japan, combining SMS and voice into a single entity allowing customers to use either up to an overall price limit. For example, by selecting a £20 package, the customer is allowed to use up to £60 worth of credit whether this be as SMS, voice or picture messages. This type of flexible package gives the consumer more choice, and offers brand differentiation for T Mobile.

**5. 3**

3 is the only UK carrier that operates a solely 3G network. In order to encourage a new entrant into the UK market the government set aside the largest of the five 3G licenses it issued for a new

entrant. This license was bought by Hutchison Whampoa in May 2000 (BT, n.d.). 3 launched its service in 2003 and provides access to video calling, games and multimedia applications covering 90% of the British population. The content on 3's website indicates that it is on the side of the customer in terms of pushing prices down. In comparison to the five other major operators, 3 offers good value for money. However, due to its heavy focus on the consumer market, 3 does not appeal to business users who are the most profitable type of customer.

**6. Virgin Mobile**

Virgin Mobile was acquired by the cable television and broadband provider NTL in 2006 (BBC News, 2006, September 27), however it remains part of Richard Branson's Virgin empire. NTL was re-branded as Virgin Media in early 2007, the company offered cable TV, broadband and both land line and mobile services in one package which could be subscribed to for £40 ($80) a month (Virgin Media, n.d.). Virgin Mobile does not own a licensed frequency spectrum, operating instead as a mobile virtual network operator or MVNO, piggybacking another network. In the case of Virgin Mobile, the T-Mobile network. Virgin Mobile is the largest of the UK MVNO operators, and has developed a wide range of services which compete favorably with the five main networks. Although Virgin Mobile offers a limited range of handsets in comparison to the other networks, their competitively priced tariffs offer better value for money. As with the other UK mobile networks, a large proportion of customers use the pay-as-you-go form of payment. This suits young consumers and those with low incomes, as they can easily control the amount they are spending on airtime. Virgin also have the advantage of being able to offer combined packages through Virgin Media, meaning that consumers are able to purchase so called 'triple play' or 'quadruple play' deals including a combination of, internet, cable television, home phone and mobile phone. These deals tend to work out less expensive than purchasing each type of media separately (Ferguson & Brohaugh, 2008).

**7. Other MVNOs**

There are numerous other MVNO companies operating on the UK market, including Fresh, BT

Mobile and EasyMobile. Although none of these have a significant market share, they are notable for providing a cheaper alternative to the main networks. MVNOs must offer cheaper calls and messaging because, due to not running their own network, they cannot access the mobile internet, significantly cutting down the range of services they are able to offer. MVNOs provide the mobile phone market with further competition for subscribers, and help to keep prices down for the consumer.

**Summary**

The wide range of options available to British consumers means that mobile operators must compete to offer the latest models at the lowest prices. As an increasing range of handsets offer mobile internet capabilities, increasing the speed of the network is also required in order to meet consumer expectations. Economies of scale have pushed down the price of high resolution screens, cameras and data storage capacity, pushing average handset functionality up to similar levels to Japanese handsets. However, British networks do not obviously exert control over the design of handsets, apart from aligning the interface colours with their own, and adding shortcuts to their internet services. In comparison to Japan, the lack of collaboration between the hardware manufacturers and networks means that both the hard and software are less compatible with the network in the UK. However, as designers and engineers refine handset usability and consumers grow accustomed to using their mobile phones, the product has become perceptively easier to use despite their increasing functionality. The following section explain the key differences in approach between the Japanese and British mobile phone industries.

**Infrastructure and System Design**

The key difference between the British and Japanese mobile phone industries is the approach each takes to designing the multi-layered package that makes up a mobile phone. When the mobile phone began becoming a mass market product in the mid-1990s, handsets were simply a slightly smaller, more portable version of the land line phone, or at least the wireless land line phone. Lindholm, Keinonen and Kiljander's book on Nokia design (2003) covers early design

problems encountered by Nokia and their solutions. The expansion of the screen to accommodate text began the transformation of the mobile phone from a phone into a multimedia device similar to a laptop computer. Due to advances in hard drive storage technologies, it is estimated that the cost of data storage is halving every year. At the same time, the relative size of storage devices is also reducing rapidly (Moore, 1965). Mobile phones provide an example of rapidly evolving technological progress, in terms of storage and processing capacity, mobile phones surpassed laptops and even home PCs that were used in the mid-1990s. According to Moore's Law, the number of transistors in a chip doubles every 2 years (Tuomi, 2002). Also, since the number of components on the chip made little difference to the cost of producing it, as the number of components increases, the cost per component drops, i.e. the cost per component is inversely proportional to the number of components (Rosch, 2003, pp. 69-70). This doubling of components and the resulting drop in price, has driven the IT revolution. Once sufficient processing capabilities have been reached, and innovators are no longer motivated to produce more powerful processors at their current rate, Moore's Law will cease to function (Christensen et al., 2004, pp. 162-163), Gordon Moore himself concedes that the theory only has a few more years left before speed of progress begins to level out (Martell, 2007), the theory offers an approximation of the dizzying speed at which technology advances and the reasons for rapidly increasing processing power. Japanese electronics manufacturers have been pioneering computing power and telecommunications technologies since the 1950s. J-Phone were the first to introduce camera phones, Sharp Corporation's J-SH04 in December 2000 (Fasol, 1997-Present), and in collaboration with NTT Docomo, creators of the i-mode mobile internet service, in February 1999 (NTT Docomo, 2006). These breakthroughs were pioneered in Japan, thanks to the Japanese tradition of collaboration (Coates & Holroyd, 2003, p. 12). In this case mobile phone manufacturers and network service providers pooled their R&D resources in order to develop a product package that seamlessly blends the physical interface of the phone with the internal operating system and the network's services. In the author's experience of using various handset models in Japan (2000 to 2006) and Britain (1998 to present), Japanese handsets, with their network-specific buttons, have shorter click distances and more intuitive interfaces than British handsets. Though indicative

rather than conclusive evidence, easy access to functions and information, makes Japanese handsets easier to use than those on the British market. However, this has changed since 2006. This change will be addressed in Chapter 5.

British mobile phone packages are generally designed along a “one size fits all” principle, whereby the physical product and interface are designed to be interchangeable between network service providers. The operating systems are phone specific rather than network specific, but tend to be generically designed for a particular brand of phone, i.e. Symbian’s S60 was used for many Nokia phones in the mid-2000s. Before the phones are sold, they are programmed to only accept SIM cards from one network. This programming can usually be removed (unlocking) if the purchaser pays a fee to the network provider. However, this is discouraged by the networks, by making the process difficult for consumers. This has created a market for unofficial phone unlocking services, which can be found on most British high streets, usually in the guise of phone accessory or repair shops.

As a result of using mass produced, non-network specific handsets, the British and European model of mobile phone design creates a multi-layered package, in which physical interfaces and operating systems are not synchronised with the services provided by the network. This creates a problem, known in the telecommunications industry as click distance, whereby the service required has to be searched for by the consumer, requiring the navigation of multiple screens, making the correct selection on each screen. Each selection is classed as one click, the greater the number the greater the click distance. Research in this field indicates that on average consumers are only willing to navigate for 30 seconds when many WAP pages take around 120 seconds to find (Ramsey, 2000). Japanese models have keys specifically designated for e-mail and web surfing, (see Illustration 13 on following page). They have also had a joystick or pad style navigation key since the late nineties. Furthermore, the mobile internet in Japan is always connected, whereas European versions require the user to dial up a connection increasing both the click distance and the time taken for the user to find a particular site. The relatively less sophisticated, non-network

specific design of British and other European mobile phones, means that they are significantly less user friendly than their Japanese equivalents.

The difference between the design approaches taken in Japan and Europe can be likened to the differences between Apple's Mac range of computers and the more generic Microsoft Windows operating system that can be run on virtually any PC or laptop hardware. The Mac package is designed by a single company. The physical product, the operating system and interface interact with each other seamlessly and this enhances usability. Of course, peripherals and services manufactured by other companies can be attached and downloaded to Apple products but the basic package is a simple, aesthetically pleasing product, with a consistent user interface. PCs on the other hand are manufactured by a number of different companies to varying degrees of aesthetic and functional merit, and simply have Windows installed onto them. The package on offer with a PC is similar to a European mobile phone package and the Mac is more like the Japanese mobile phone with its service specific and usability focused approach to design. However, this analogy breaks down top some extent since Apple released their iPhone, forcing the company into collaboration with mobile phone networks (the iPhone phenomenon will be further analysed in Chapter 5).

The differences in design approach can be attributed to a number of factors in Japanese and European culture and, by implication, different design histories. Japan's self-imposed isolation from outside influences during the Edo period until the late 19th Century has made it a fascinating country to use for cultural comparison, details of which are outlined in Chapter 2. Britain has a history of numerous immigration waves that have changed the make-up of the population and English language over the centuries. However, Britain is an island nation where the population has a strong sense of being culturally different to continental Europe (Aspinwall, 2004, p. 8). As another island nation, on the edge of Asia, it is possible to draw similarities between Britain and Japan, in terms of political alignment. Both nations have strong ties with the United States due in part to physical isolations from the continents they are affiliated with, but also to maximise the economic

and political advantages of American protection in the event of any conflict (A. Davies & Sinfield, 2000, p. 104; Mosler & Catley, 2000, p. 176). However, these similarities do little to disguise the huge cultural gulf between Britain and Japan. Further implications of these differences should be evident from discussion on social and business practices in Chapter 2.

**Handsets**

The UK handset market is dominated by Nokia, Sony Ericsson, Samsung and LG, there are no major native handset manufacturers in the mobile phone market. Vertu handsets are designed and made in Britain, but occupy a very small luxury market. Although networks have some power over manufacturers, the relationship between them is much looser than it is in Japan, where manufacturers must tailor functions and features to each network individually (see page 116-7 for further details). In Britain and throughout Europe, the GSM,originally Group Speciale Mobile (GSM World, n.d.), SIM card system allows users to transfer between networks by simply changing the SIM card. This allows manufacturers to take advantage of economies of scale; they are able to sell large quantities of the same handset hardware to networks throughout Europe, and therefore can afford to devote a smaller proportion of turnover to research and development. Japan began to use the SIM card system when 3G was launched, however it is not possible to transfer between networks, so is primarily available to allow for simpler handset upgrades.

As tariffs fall and consumers become increasingly sophisticated, networks and manufacturers have responded by offering a wider range of products and services targeted at specific markets. Competition has forced the cost of mobile phone communications down, potentially reducing average revenue per user or ARPU. In response to this, operators have had to come up with new ways to increase revenue, including data packages and additional services. *The Mobile Life Report 2006* breaks down consumers into six distinct groups with names such as "Silver Cynics" and "Generation Mobile". These groups have distinct profiles and consumption patterns (The Carphone Warehouse, 2006). This is a useful tool for a company such as The Carphone Warehouse, which commissioned the report, who can then create products and services targeted at specific

audiences, through different media outlets.

The technology gap in terms of handset functionality, used to leave Europe several years behind Japan. More recently, this gap has started to close, with competition from Korean manufacturers LG and Samsung and increasingly Chinese manufacturers such as HTC. Handsets for markets in Asia and Europe tend to have different design specifications in line with consumer preferences. The majority of Japanese phones are of the clamshell or flip variety, whereas European phones come in a range of forms, including the so called candy bar, slider phones as well as the clamshell models (Table 5.). Since the release of the iPhone in 2007, increasing numbers of touch-screen phones are being brought onto the market in both countries, but particularly in Britain. Early in the development of mobile phones, when Japanese handsets were significantly more advanced than those available in the UK, quality controls were considerably more stringent in Japan, reflecting a difference in consumer expectations (Hisa, 2006). However, since 2007, the technological gap between Japanese and European handsets appears to have closed, although Japanese consumers may still have higher expectations of customer service. Consumers throughout the developed world have come to expect a high level of performance from their mobile phone handsets.

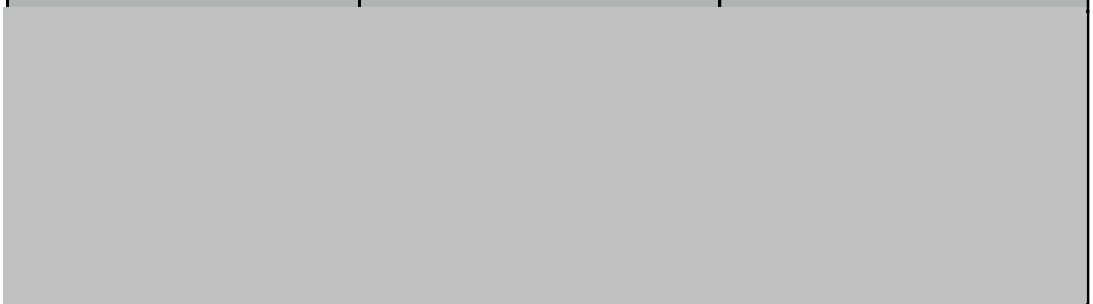
| Candy Bar | Slider | Clamshell |
|---|---|---|
|  | | |
| https://shop.o2.co.uk/phone/Sony_Ericsson/K810i | https://shop.o2.co.uk/phone/Samsung/U600 | https://shop.o2.co.uk/phone/Sony%20Ericsson/Z310i |

**Table 5.** Main types of mobile phones in Britain, accessed 04/05/2007

As the gap between handset capabilities has closed, it is in the services provided by the networks where the Japanese lead remains. British networks have been slow to adopt many of the services

provided by Japanese networks, meaning that most companies have not introduced websites that can be accessed on a mobile device. However, with increasing numbers of handsets featuring full web browsers and WiFi capabilities, it is no longer necessary for websites to write specific mobile pages. Though a large proportion of British mobile phones now have colour screens and 3G capabilities, the services on offer remain underused due to slowness, and the cost of and time taken to access information. Media content including music and games, which are charged at around £3 per song or £5 for a game. Some phones, including Nokia's N95 and Apple's iPhone, come equipped with WiFi, allowing consumers to access the internet whenever they are in a hotspot. These phones also feature full size web browsers, eliminating the need for mobile specific websites. The direction of these developments in mobile internet indicates that in Britain at least, many consumers are likely to leapfrog the mobile internet and increase the number of handsets with full internet browser capabilities.

**Handset Manufacturers**

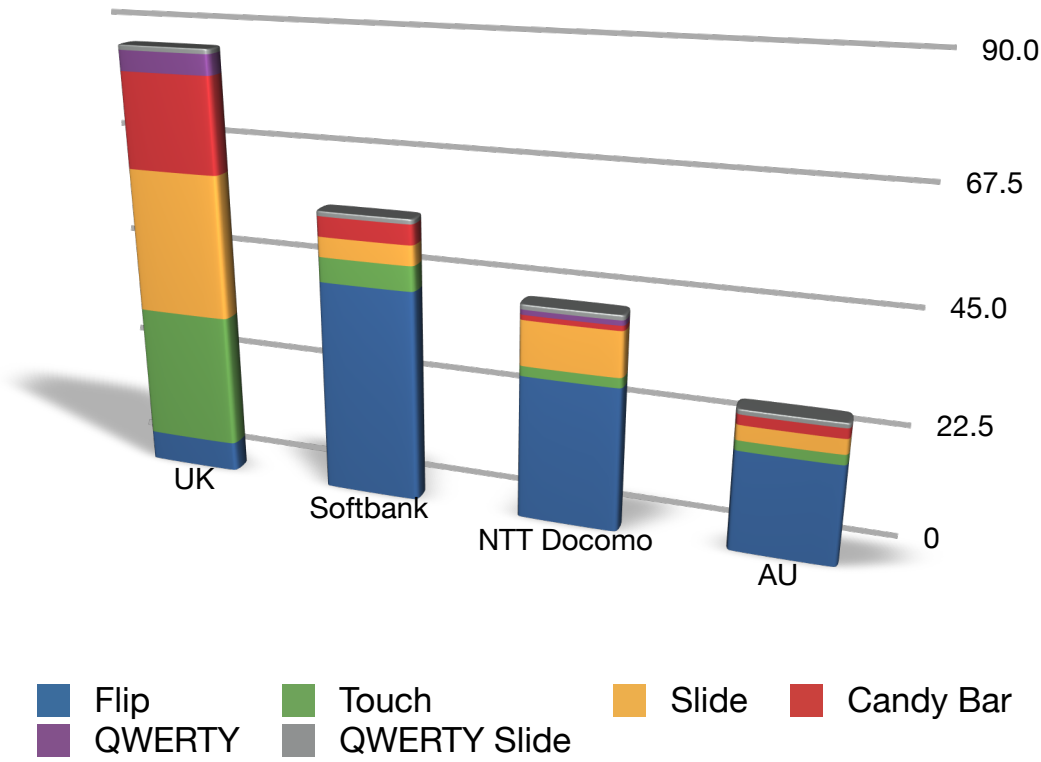
This section looks at the different handset manufacturers supplying phones to consumers in Britain and Japan. The differences in design between the two countries are striking. Table 6. & Graph 3. show the quantifiable differences between the handsets available in the UK and Japan. These charts, based on information from the sales site of major networks in both countries, shows that Japanese consumers had 50% more choice in terms of handset model in November 2009 than their British counterparts. They also had around 3 times as many colour options. This contrasts with the phone type (or design) analysis which shows that the majority of the handsets available to Japanese consumers are flip phones, whereas British consumers can choose from an array of touch-screen, flip, slide and candy bar styles of handset.

| Table 6. | UK | Softbank | NTT Docomo | AU | Japan Total |
|---|---|---|---|---|---|
| **Handset Total** | 86 | 57 | 43 | 28 | 128 |
| **Colour Total** | 132 | 234 | 147 | 133 | 514 |
| **Mean** | 1.5348837209 | 4.1052631579 | 3.4186046512 | 4.75 | 4.0912892697 |
| **Mode** | Black | Black | White | Black | Black |
| **Type Mode** | Slide | Flip | Flip | Flip | Flip |

**Graph**

**3.**

**Phones by Type UK/Japan Comparison (November 2009)**




Data source: Orange, Vodafone, O2, T-mobile, AU, Softbank & NTT Docomo websites

**Britain**

The range of handset brands available in the UK has grown considerably since mobile phones became a consumer product. Following the joining of Sony and Ericsson in 2001 (BBC News, 2001), their handsets have gradually gained in popularity. Between 2007 and 2010 the parameters of the handset market shifted considerably. The iPhone's popularity caused other handset manufacturers to release touch-screen phones, many of which are similar in appearance to the iPhone. However, as a business strategy, this rush towards touch-screen technology has produced a number of handsets with neither sufficient usability nor brand appeal. Through piggybacking the iPhone touch-screen bandwagon, those manufacturing for the British market have abandoned their trademark designs, and produced a generic looking touch-screen product before designing a

| | |
|---|---|
| | Nokia is the world's most popular handset manufacturer with around 30% of the global market share. Its success has come from concentrating on solely producing mobile phones, with a consistently easy-to-use interface. Their cheap, robust handsets are particularly popular in developing countries.<br>Image: http://www.resimler.tv/resim2897.htm accessed 17/11/2008 |
| | Sony Ericsson have remained a strong brand in Europe since Sony and Ericsson joined forces in 2001. Their handsets have a higher quality finish than Nokia's. Sony Ericsson make phones in a variety of shapes, with the candy-bar style being slightly more dominant than slider or flip phones. They often feature either a Walkman or Cybershot brand, depending on whether they specialise in music playback or photography respectively. Using brands from other areas of their electronics business, has become a typically Japanese way of fostering brand loyalty. In the case of Sony Ericsson, the use of the Walkman brand is particularly strategic, as consumers are very familiar with its history. |
| | Once the second highest selling brand of mobile phone in Britain, Motorola's popularity has faded due to poor usability, a relatively unimpressive range of functionality, and a lack of new products to compete with the high-tech handsets with multiple functions available from other manufacturers. |
| | Slide phones have become Samsung's trademark. Their simple compact design combined with high-tech features and elaborate visuals, make them a popular choice for young consumers. Samsung is the most well-known Korean electronics brand, with a wide range of products available globally. |
| | Specialising in slide and touch-screen phones, LG have developed a range of innovative looking products with hi-tech functions. The Korean manufacturer's designs have similar features to Samsung mobile phones, indicating that there could be a national design trend. |
| | Popular with business people who need to stay in touch on the go, the Blackberry range offers a QWERTY keyboard and featuring an early version of the touch email system. Blackberry addiction has become a popular complaint among executives, earning it the moniker "Crackberry". Barton, L. (23/10/2009) 'Net contributions: how the internet has influenced the English language' *Guardian http://www.guardian.co.uk/technology/2009/oct/23/net-contributions-language accessed 30/11/2009* |

**Table 7.**

sufficiently intuitive interface. It should however be noted that, in tests by professional technology reviewers from the website CNET, the HTC Hero and the Palm Pre have come close to rivaling the iPhone's interface usability, without mimicking the design of the hardware, but these manufacturers do not have the marketing budget available to take on the Apple brand (Graham, 2009a, 2009b, 2009c).[67]

**Japan**

An entirely different set of companies supply the majority of mobile phone handsets in Japan. Familiar consumer electronics brands make up the bulk of the market, though this is beginning to shift with the introduction of Blackberry and Apple's iPhone, as well as a growing range of Korean handsets available in Japan. In addition, it is possible to find handsets manufactured by Toshiba, Matsushita Electric and Kyocera in Japan. The sheer number of handsets on sale at any one time presents a confusing array of choice for the Japanese consumer. Each manufacturer produces a multitude of handsets aimed at different segments of the population.

**A Comparison of Mobile Internet Services**

Docomo was first to bring out a mobile phone with e-mail and internet capabilities in early 1999. This service allowed customers to send each other e-mails and data from as little as one yen (>1/2p). In Britain, phones with WAP (Wireless Application Protocol), a different type of internet standard, was also first seen in 1999. WAP has become the global standard for mobile internet worldwide because it is an open standard, i.e. not owned by a business or organisation. I-mode is a propriety service, owned by NTT Docomo, which despite superiority to WAP in terms of download speed and usability, has not been widely adopted globally as content providers would have to pay to use the standard. Predating WAP, British networks have a text messaging service which charges customers around 10p to send a message. A push e-mail based service is also available, but only on premium handsets and provided that there is a monthly charge for internet

[67] It should be remembered that CNET reviews are written by professional technology reviewers, as such, their opinions are derived from using a huge range of products. This experience necessarily changes the way they understand technology, as well as their expectations of product performance.

| | |
|---|---|
| | Sleek and easy to use, NEC's handsets were the first flip phones available in Japan. With its large screen specifically designed for viewing iMode pages, the N501i model produced for NTT Docomo was an enormous success. The layout of the N501i eventually became the standard from which all Japanese handsets are designed, though this is now beginning to change. The four way directional keys of the N501i, was developed into a circular key with a select button above it in the next model the 502i. This 4 directional design remains a popular feature on phones throughout the world. |
| | Matsushita, is one of the largest corporations in Japan, with Panasonic as its consumer electronics brand. Early handsets had a multi-directional joystick, which could be pressed down as a select button. Upon the shift towards clamshell phones prompted by the popularity of the NEC handsets, Panasonic changed this joystick to a flatter four way directional key with a central select button as in the turtle shaped P503iS. The central button saved space, and was soon adopted by the majority of other mobile phone companies. |
| | Fujitsu is primarily a producer of hardware and software for computing. Although its first product was a phone in 1945, computing has been the strongest part of the company for many years. With expertise in both telecommunications and computing, the company placed itself well to be among the first to offer mobile phones. Rakuraku Phone is Fujitsu's primary brand. The phones are designed with the older consumer in mind, with simplicity as the key feature. The first rakuraku phone was introduced by Panasonic in 1999 but was not successful. Fujitsu's bar style Rakuraku Phone was released in August 2001. Although it was relatively popular, functionality was limited and the demand for mail compatible phones was increasing even amongst older consumers. This resulted in the next generation Rakuraku Phone in September 2002 which was foldable and the first phone to included a guide for ease of use. |
| | Sharp's SH04, in conjunction with J Phone (now Softbank) was the world's first camera phone. Introduced in November 2000, it was able to take and send photographs via e-mail. Following the success of the first camera phone, the SH05 clamshell was the first mobile phone with a 65,536 colour screen. Sharp's handsets remain popular, many of which now bear the Aquos television brand, emphasising the company's high quality screens. |
| | Casio produce a range of rugged handsets for outdoor sports enthusiasts. The concept is based on the Casio G-Shock brand of watches, which are chunky, hard wearing and waterproof. Casio's main product lines include, watches, calculators and electronic dictionaries; their range of mobile phones is limited. |

**Table 8.**

usage. It is for this reason, along with the sale of separate texts and minutes as an airtime package, that in Britain, mobile to mobile email services have not yet caught on.

WAP and i-mode cannot be directly compared since WAP is a protocol and “i-mode is a complete wireless internet service” (NTT Docomo, n.d.-b). It is, however, possible to compare the services offered by WAP and i-mode providers. The design and marketing of mobile internet services, provides clues about the the gulf in usage patterns observable when comparing Japan and British mobile phone consumers. One key difference is the mode of access to internet services: British mobiles are circuit switched, and require the user to dial-up in order to connect whereas Japanese services including i-mode are packet switched and are always connected provided the handset can be reached by the radio signal (Coates & Holroyd, 2003, p. 97). This means that the Japanese services can be reached quickly and with fewer clicks than British WAP services. Furthermore, the addition of internet and e-mail buttons to the physical interface of the Japanese handsets makes content easy to reach. A barcode reading service accessible from the handset’s camera has further reduced the click distance from mobile internet sites.[68]

Due to the relative delay in mobile internet technology, compared to Japan and Korea, many providers of downloads such as pictures and ring-tones in Europe still advertise their services through magazines and on TV, something that has been unnecessary in Japan. The revenue for both the providers and the advertising media provides strong motivation to keep the cheaper technology out of the hands of European consumers. However, this may simply be the problem of the lack of European interest in WAP. In terms of features such as digital cameras and MP3 players, European handsets have relatively less functionality and smaller memories compared to Japanese phones. As all networks offer a similar range of handset, consumers are given fewer choices in terms of the colour and design; this however is changing. With the exception of Sony Ericsson, Japanese brands are not readily available in Europe, and those that are tend to be

[68] A piece of software can be installed on the handset which renders the camera capable of reading barcodes. This technology is used to enable consumers to connect directly to websites simply by photographing the barcode.

models designed specifically for the European market and are therefore not particularly radical designs. Nor do they display the full range of functions available in Japan, partly because European networks lack the capacity to handle the necessary quantities of data. The failure of British networks to invest heavily in high-speed 3G transmitters, has resulted in a pronounced gap between the capabilities of available handsets and the networks serving them. Most British consumers are unwilling to pay for the limited services available.

**Significant Technologies**

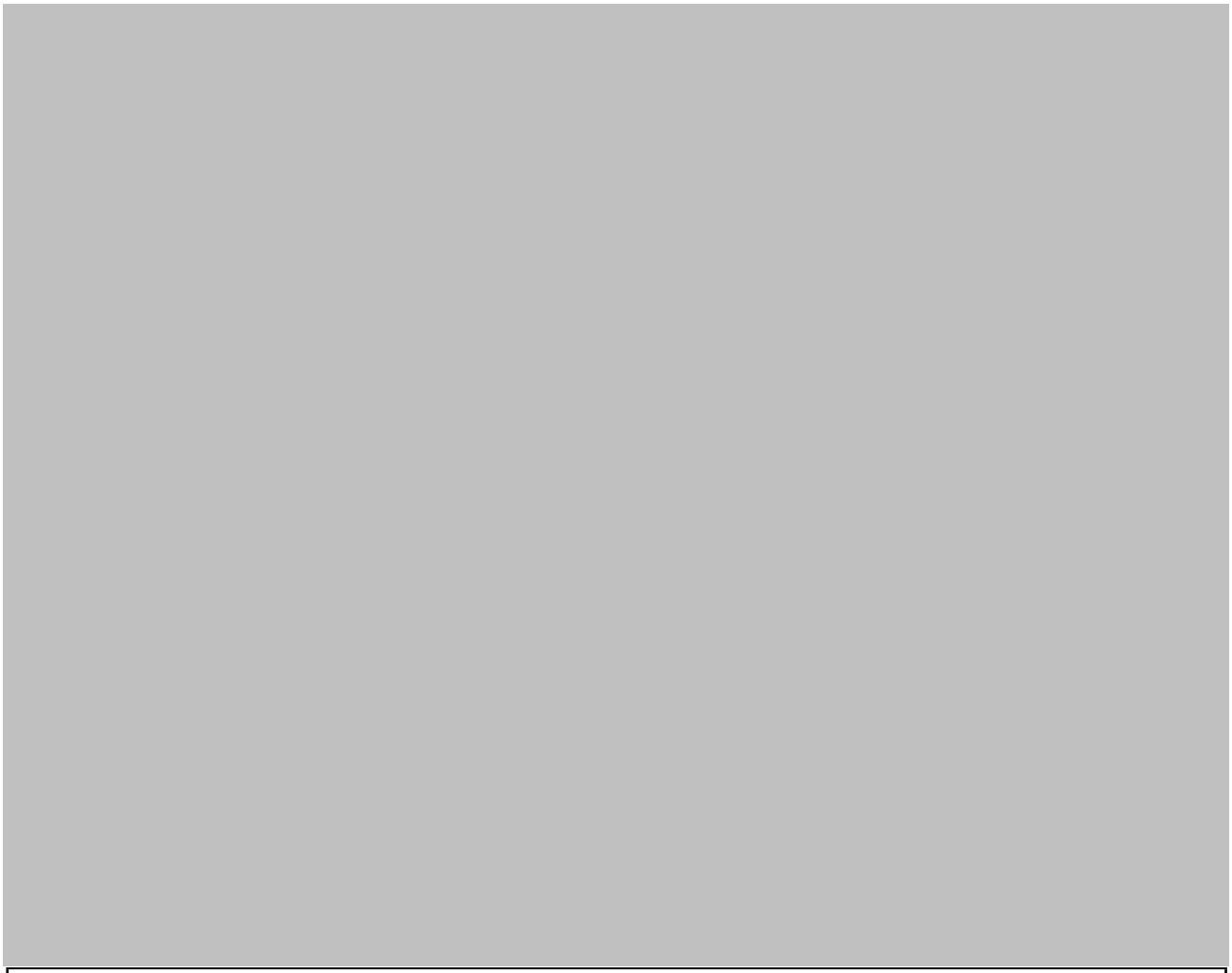
Japanese manufacturers have introduced a number of technologies, all of which rely upon the skill of designers in order to integrate them into the product. The majority of services and high-tech functions on mobile phone handsets were first introduced in Japan. Some of these, including the camera, music player and mobile internet have become universal, but others, such as the near field communication chip which allows travel on the public transport network and purchase of small items using the phone, are yet to become available outside Japan.

**1. i-mode**

Mari Matsunaga came to Docomo having been previously editor in chief at Recruit[69] without prior knowledge of mobile phones or related technologies. However, she correctly predicted that customers wanted easy to use content and useful local information such as bus timetables and restaurant listings. The first Docomo phone with e-mail and some i-mode capabilities launched in 1999 (NTT Docomo, n.d.-b) proved immensely popular as i-mode was marketed as a fun additional service rather than phone based internet which would have created high expectations from customers. I-mode is constantly connected and has special sites which must be approved by Docomo, with simple graphics suitable for viewing on a small screen. It is also cheap at around 400 yen (£3.20) per month with additional charges being levied for downloading certain conten (Fasol, 1997-Present; Matsunaga, 2001).

[69] Recruit is a Japanese publishing company

The constant introduction of new content and services is testament to Docomo's continuing commitment to R&D. Colour screens allowed for the introduction of a wider variety of content including the i-appli game downloading service, i-area mapping and i-motion videos. The introduction of Docomo's FOMA 3G service has speeded up access and download times, which enhances usability.



**Graph 4.** i-mode subscribers **(NTT Docomo, 2010)**

**2. Wallet phones (Osaifu Keitai)**

In collaboration with Docomo, JR East Japan (part of the national railway network), numerous convenience stores and vending machine networks have installed IC chip readers so that

consumers can use their mobile phone to buy products and services.[70] Japan has long been an extremely cash dependent society, partly because of its unusually low crime rate, which is often attributed to the relatively equal share of the country's wealth.

> Japan has developed the lowest income distribution among the developed market economies, and the highest life expectancy in the industrialised world (Marmot and Davey-Smith, 1989). As an indication of the growth of social cohesion, Japanese crime rates decreased, particularly in the inner city areas, and their relationship with deprivation weakened (Clifford, 1976). The impression is that the public sphere of life in Japan is more clearly part of the social life and is governed more by shared moral values than by the market. (Strickland & Shetty, 1998, p. 67)

This social cohesion is gradually changing, as income distribution becomes more polarised. Other factors such as the "weakening of parental authority, loss of parental control in urban settings and exposure to Western culture" (The Economist, 2007a), has meant that the crime rate in Japan appears to be increasing (Danermark, 2002, p. 183; Tseng, Matthews, & Elwyn, 2004, p. 155).[71] The implications of this increase in crime rate include a shift towards card based payment systems to avoid the hazards of carrying cash. With the introduction of so called "wallet phones" as a form of credit, it is likely that many people will skip over the credit card stage and move straight to the wallet phone as a secure, convenient and space saving method of carrying money. As they become increasingly widespread and a larger proportion of outlets install IC chip readers that accept wallet phone payments, these will inevitably become a popular form of payment. In Japan the IC chips known as Felica, can be used in a large number of convenience stores. Convenience stores have benefited from the reduced transaction time of the Felica chip, as this allows them to serve more customers in a shorter period, reducing personnel costs.

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[70] The cost of products and services is either subtracted from the phone bill of the consumer or is linked to one of a number of different credit companies including Visa.

[71] Though this could also be the result of a change to the crime reporting system.

The Felica system in Japan, and the introduction of the Oyster card for use on London's public transportation system, are already having the effect of reducing the use of paper in the form of tickets and receipts as information about purchases can easily stored on the phone or IC chip (Publicservice.co.uk, 2010).[72] At the beginning of the computer age in the 1980s it was said that we would become a paper-free society, though it would appear that printing has increased since then (The Economist, 2007a). The introduction of wallet phones as well as IC cards in general has reduced the amount of paper used for ticketing purposes and for receipts, which although relatively small compared with the amount used in offices, is a significant step towards a paper-free society. A further benefit of mobile ticketing and vouchers is that they are inherently more secure than paper tickets, as they are not as easily transferable and are less likely to be lost.

**Illustration 13.**

A customer makes a purchase using a wallet phone

A mobile phone based payment system is noteworthy, not only for consumers, but also for the wider economy. Handling cash is expensive, so a cheaper, cleaner and faster system should be welcomed by companies looking to increase efficiency and decrease the costs associated with cash handling. Once a comprehensive mobile phone based payment infrastructure has been

[72] According to Transport for London, one year after the introduction of Oyster, 100,000 fewer paper tickets were being sold daily.

installed, banks would be able to get rid of the majority of ATM cash machines, which are costly to install and maintain (Funk, 2004, pp. 70-71).

Despite all the advantages to both consumers and businesses, there are numerous problems associated with switching to a digital payment system. The main problem for citizens would be the loss of the personal freedoms associated with an anonymous cash based economy. For governments this development would be a boon, as they would have the ability to track payments and detect irregularities in all transactions, which would reveal and identify criminal activities such as fraud and terrorism. However, workers in the casual labour market would be at a disadvantage, as minor tax evasion practices such as the failure to declare tips or payment for cash-in-hand services such as baby-sitting would become near impossible (The Economist, 2007a).

Near field communication chips such as those found in IC chip enabled wallet phones, can also be used as keys or identity cards for homes and offices, further increasing reliance on the phone, as well as heightening the need for biometric identification systems. Biometric data is already in use in Japan where some handsets have fingerprint identification systems. With Transport for London already developing a joint payment system with Barclaycard, a comprehensive mobile phone payment infrastructure for the UK market is becoming feasible (BBC News, 2006b). However, it is by no means certain that Britain would take the same path as Japan, or indeed have any desire to. Currently, it is possible to buy tickets on a mobile phone, by sending an SMS to a premium shortcode number,[73] and then receiving a ticket in the form of a barcode. This approach eliminates the need for an embedded IC chip and can therefore be used on a wider range of the handsets currently available, it does however still require costly readers to be installed.

**3. Location Based Services and GPS**

Mobile phones with location tracking technologies such as Global Positioning System (GPS) are available in both Japan and the United Kingdom. However, in contrast with Japan, mapping and

[73] A shortcode is similar to those used by television shows that collect votes from members of the public.

location based services are by no means a universal feature of British mobile phones. As with many mobile based technologies, Japanese networks and manufacturers introduced the technologies earlier than British firms. GPS was originally heavy, expensive and required a larger screen with a higher resolution than was available on mobile phones in the late 1990s and early 2000s. At the launch of i-mode, location based services such as train timetables and restaurant listings were available, but there was no mapping service for the black and white, low resolution mobiles around at the time. Train and bus timetables are more useful than maps for mobile users who can use them to plan their route and estimate timings. In Japan train and subway systems are very punctual, making it possible to plan journeys accurately. Bus timetables on the other hand, are less reliable as they are determined by traffic and affected by weather conditions. However, tracking systems have been introduced by bus companies, which help predict departure and arrival times more accurately (Funk, 2004, pp. 125-133). It is worth noting, that in the case of Tokyo City Bus, part of the rationale for introducing bus tracking technologies, was in order to halt an exodus of bus passengers, who it is possible to speculate preferred to use trains and subways wherever possible, as they could plan journeys conveniently and accurately on their mobile phones. It is also worth noting that the introduction of Suica, a pre-paid contact-less card, similar to London's Oyster card, which can be used across the Kanto region (incorporating Greater Tokyo) on all JR trains, may serve as another factor pushing people towards train travel, especially since the introduction of mobile phones with inbuilt Suica chips.

Since the introduction of location-based services, screens on mobile phones have grown larger and have higher resolution, in line with the greater range of functions phones are able to perform. Mapping services, showing a variety of information, have been introduced and become more sophisticated, eventually incorporating GPS technologies. Almost all new Japanese mobile phones now have some sort of mapping technology similar to GPS, and it is possible to download applications such as Google Maps onto many British mobiles with internet capability.

In Japan, parents wanting to keep track of their children can now buy phones fitted with GPS,

which can be paired with a parent's phone, allowing them to pinpoint a child's location. Specially designed children's phones are also fitted with an alarm, which when activated sends a map of the child's location to the parent's phone. Sales of these devices have benefited from the increasing number of kidnappings and child abuse cases reported in the Japanese media.[74] As well as reassuring parents of young children, a paired GPS capable device can also be used to track the movements of older teenagers and even spouses suspected of philandering. Another use for GPS technology, is the ability to keep track of the movements of elderly relatives or disabled people who live alone.

As the capabilities of GPS technologies and location based services increase, as with other mobile phone functions, the moral implications of their potential uses will become increasingly complex. In Britain, where citizens' movements and shopping habits are already tracked to some extent by ubiquitous closed circuit television (CCTV) cameras, banks and loyalty cards, there has been substantial public protest on this type of surveillance as a breach of civil liberties (S. Foster, 2006, pp. 147-148). In Japan, privacy is less well protected than in the UK. Compulsory medical examinations are common from childhood, with results divulged to teachers and managers, and until 2000 then again from November 2007 fingerprints of all foreign nationals were taken upon entering Japan (S. Foster, 2006, pp. 147-148). Despite different attitudes towards disclosing information, it remains unclear as to whether British consumers would be comfortable with mobile devices fitted with tracking capabilities. Given the emphasis placed on civil liberties in the UK, and taking into account the differences in lifestyle,[75] it is unlikely GPS mobile phones, particularly those used for tracking, will have as large a market as in Japan.

**4. Mobile Television**

Phones with inbuilt televisions are designed with as big a high resolution screen as is acceptable to

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[74] Though the number of kidnappings and cases of child abuse may not actually be increasing, media interest in these types of crimes and changes to the way in which crimes are reported, makes it look as though they are common.

[75] Factors such as more children being driven to school in the UK, and a more comprehensive social welfare system taking greater care of the elderly and disabled.

the consumer, i.e. without increasing the overall size and weight of the phone. Many Japanese mobile phones have terrestrial television receivers built in to their hardware, enabling consumers to watch their favourite shows in real-time and without paying for the service. Using a terrestrial tuner also bypasses the need for internet streaming, giving consumers a clear and uninterrupted picture. This has been capitalised on by electronics manufacturers who make both mobile phones and televisions. For example, Sharp markets its phones by using the Aquos brand to draw consumers by associating their product with their flat screen televisions. It has also meant that manufacturers have designed some phones with larger, high definition screens, some of which can either be flipped 90 degrees or propped up in the landscape position, in order to optimise the viewing experience.

**Illustration 14.**

The SH905iTV by Sharp has an Aquos screen that turns 90 degrees, for easy viewing. Manufacturers are using their strengths in other areas of the electronics industry to create mobile phones that appeal for their secondary functions. Sony Ericsson promotes its Walkman and Cybershot range of phones, the former for its superior music playback functions and the latter for its high-tech camera, though both ranges can also perform the functions of the other.

The Panasonic Viera can be propped up in landscape for viewing the television, and has a speaker attachment (shown on the left), presumably for watching with friends. The Viera phone also features a battery with a standby time of nearly a month, or 6 hours when used as a television. Long battery life is essential if the handset is to be viable in its secondary function. http://www.nttdocomo.co.jp/english/product/foma/905i/index.html accessed 30/05/2008

The UK networks have taken a different approach to offering consumers TV content on their phones. Rather than a standard television receiver, some UK mobiles are able to stream programs through their 3G connection. Since 3G networks vary in coverage, watching programs whilst travelling is problematic and therefore mobile TV has yet to capture a significant audience. The present service does not offer good value for money when compared with other mobile and media services. It is crucial that network service providers keep an eye on current trends in general internet usage as well as the media in general in order to come up with a value added service for subscribers. Competition over content is likely to increase as sales of handsets decrease in countries with high rates on mobile phone penetration. However, as with previous innovations added to mobile phones to boost sales and stimulate the market for new handsets,[76] it is likely that manufacturers will continue to invent desirable functions to compete for sales. One area of particular interest to manufacturers and is solving the issue of the mobile phone's small screen. Already this is being tackled by Apple and LG whose touch-screen phones allow for the handset to remain the same size and weight as comparable products, but which optimise the potential screen size. Another option would be the development of a miniature projection unit, that could be used against any flat light-coloured surface, and which would potentially enhance the user experience of watching television or playing games on a mobile device (The Economist, 2008b).

**5. Multi-Media Applications**

As digital memory becomes smaller and less power draining, phones are able to store far more data. This allows manufacturers to add increasingly elaborate multi-media functions. The addition of services such as Napster (The Japan Times, 2006) and Lismo (KDDI, 2006) has made it easier and cheaper to download music onto phones. Softbank does not market music phones specifically, but has a collaboration with Apple, whereby new subscribers are given an iPod which has far greater kudos among young Japanese. With Steve Jobs' announcement of the Apple iPhone at the Macworld Conference and Expo 2007, the combination of the iPod and the mobile phone became

[76] Including; cameras, music players and mobile internet capabilities etc.

a reality, causing Apple's stock to soar (McNamara, 2007), while simultaneously causing the stock value of other mobile phone and PDA giants to suffer huge losses. Blackberry, for example, suffered a 7% drop in stock price in a single day (Arnall, 2007).

**Mobile Phones Industry Standards**

As the mobile phone industry becomes increasingly complex, aligning standards becomes ever more important in order to ensure customers are able to use their devices seamlessly wherever they are in the world. European standards have always been relatively compatible, but the Japanese and US markets began with different standards. Only recently, with the introduction of the 3G global standard, have European users been able to use their phones easily in these countries.

The Japanese mobile phone industry uses CDMAone and 3GSM, Britain uses GSM and 3GSM. Global standards were originally developed independently. However with the increasing availability of low cost air travel, and an expectation by consumers, particularly business consumers, that they will be able to use their mobile to communicate wherever they are in the world, there has been some convergence of standards. However this remains limited, with countries taking different approaches to communications policies. Advances in microelectronics have sorted out some of the problems associated with multiple bandwidths, with tri-band and even quad-band handsets available, which are able to pick up signals in most countries.

**Consumer Choice Comparison**

Consumer culture requires us to make numerous choices on a daily basis. These can be for relatively minor items such as a snack or drink, or for a product, such as a mobile phone which will be carried with them constantly, and used every day for a significant period. This will, for many, become part of their identity. Therefore, choosing a mobile phone is a complicated process. It requires the consumer to weigh up a variety of criteria before making their choice. Factors that are important to some consumers, such as the cost of calls, are less so to others, who may be more

concerned with the appearance or functionality of the handset. These factors have changed considerably since the introduction of the mobile phone as an affordable consumer product. Price is possibly the only consideration that has not altered significantly over the years. In the mid-late 1990s, reliability of both network and product were major considerations as coverage was incomplete and phone hardware was less reliable. Modern phones and networks available in Japan and the UK no longer suffer from this sort of problem. Functionality, brand loyalty, convenience and style have become far more important to consumers of mobile phones, but differentially so, according to the demographic profile of the consumer in question. Usability is often associated with older or physically disabled users, but this is an unnecessary and unhelpful stigma. A product such as the Apple iPod, which is designed to be as simple as possible to operate (Reppel, Szmigin, & Gruber, 2006), can be appreciated by a wide range of consumers, from the technology savvy to those who remain relatively unfamiliar with modern consumer electronics.

In Britain, the SIM card system allows users to switch between handsets with relative ease and means that they can be recycled without excessive reprogramming. It is possible to choose a handset without being restricted to a specific network, allowing consumers to make up a package to suits their needs. As stated earlier on in the chapter, there are problems with the freedom of choice offered to British consumers. These include the usability problems created by the layering of product with services and the relatively limited range of handsets and services available. Britain was among the earliest countries to allow number portability between networks, which was introduced in 1999 (Vesa, 2005, pp. 178-179). Number portability enabled consumers to switch between networks, which intensified competition and brought down prices. It also forced networks to concentrate not only on recruiting new subscribers, but also on retaining existing ones. Mobile browsing has yet to generate significant interest amongst consumers and is a relatively modest market in comparison to Japan (Mobile Data Association, 2008).

As functionality and services offered as part of the mobile phone package increase, fewer and fewer consumers are able to fully comprehend what they are being offered. This may lead some

consumers to make their choice of handset based on style rather than functionality. Mobile internet browsing is one example of how misconceptions and uncertainties about pricing structure have kept usage low throughout Europe. The difference between Japan, where mobile internet use is relatively high, and Europe, is consumer understanding of the services available. Japanese operators charge a flat rate for browsing but charge for most downloaded material except for promotional content, such as vouchers, offered by advertisers. Another key difference is consumer expectations of the service. In the UK a similar service is advertised as mobile internet, meaning that users expect internet levels of performance and content. Contrastingly, in Japan, i-mode was first introduced as a fun and complimentary service, without the expectations that it would offer the same content as the internet (Steinbock, 2005, pp. 66-67).

## Luxury Brands

### Case Study: Vertu

The trend for premium brands has crossed over into the world of mobile phones. This usually requires collaboration between the brand and an electronics firm as in the LG-Prada partnership. Because of the way mobile phones are sold in many countries, with the cost of the phone paid for by monthly connection fees allowing networks to heavily subsidise handsets, these branded phones can be easily obtained and therefore do not carry the same prestige of the brand's normal range of products. According to Tagore Ramoutar, the business development manager for Vertu, a manufacturer of exclusive handmade mobile phone handsets, this makes it hard to understand why premium brands such as Prada and Tiffany would want to be associated with mass market mobile phone brands such as LG (Ramoutar, 2008).

British firm Vertu, now owned by Nokia, produces hand-crafted mobile phones using high quality, extremely durable materials. Vertu phones retail for several thousand pounds, and are therefore a status symbol, offering owners a concierge service, through which, it is possible to book flights, arrange for gifts to be delivered, and provide information on local restaurants, entertainment etc., in a similar way to a hotel concierge. Vertu do not sell their phones through high street or online

retailers, they can only be bought from a selection of jewellers and high-end department stores. Vertu handsets are not subsidised by mobile phone networks, so can be used with any SIM card.

With their emphasis on the luxury end of the market, Vertu are following the path of niche motor manufacturers such as Maclaren or Morgan, both designed and built in Britain, in producing high quality, hand-made products for a wealthy clientele. Britain's manufacturing industry has been in decline since the 1970s, as cheap labour attracted companies overseas, resulting in the fact that, in some industries, there has been a shift towards craftsmanship and exclusivity, as opposed to mass production. Japan still has a thriving manufacturing industry, as outlined in Chapter 2, mainly producing automotives and high-end electronics. Much of the manufacture of lower end technologies has been moved abroad, but the more complex manufacturing remains in Japan in order to protect intellectual property (Kressel & Lento, 2007, p. 245). In February 2009 the company opened its first store in Japan (Vertu, 2009), the largest luxury goods market in the world. Despite the buoyancy of the Japanese luxury good market, whether Vertu will be a success in a saturated handset market remains to be seen. However, apart from a few special editions, including a Tiffany branded, diamond encrusted phone from Softbank and the LG Prada, the luxury end of the mobile phone market has yet to be tested. However, the launch of Vertu will be of interest to other luxury goods manufacturers and mobile phone manufacturers alike, as the combination of quality and service will no doubt set a precedent for the industry.

The luxury goods market has thrived in Japan for a variety of reasons. As the first Asian country to industrialise, and with a relatively high GDP, the Japanese began to travel abroad in the 1970s. Japanese culture has a traditional respect for high quality products and services. Since the Meiji Restoration, Japanese consumers have purchased Western products, the purchase of luxury brands allowing them to feel that they have bought into something both exotic and sought after. The Japanese have an unusual relationship with the West, because of the ebb and flow between rivalry and mutual respect that has taken place since the opening up of Japan a century and a half ago. As discussed in Chapter 2, when trade first began there was a surge of interest in all things western, including clothing, food and architecture. This was followed by a resurgence of

nationalism, eventually leading to Japan's part in the Second World War. Following defeat, the Japanese were under the control of American forces, as a result of which the people developed a deep respect for Western and particularly American thinking. However, this period was followed by unrivalled economic growth in Japan, which continued through the 1970s and 1980s. Although it was of concern to western governments, it also provided a huge boost in confidence to the Japanese people. More recently, with a twenty year recession, following the collapse of the Bubble Economy, as described in Chapter 2, Japan has lost some of this confidence, possibly explaining a resurgence of fascination with the West. Evidence for this fascination can be found in the number of English language schools and in the continued patronage of western luxury brands. From this brief analysis of the relationship between Japan and the West, it can be seen that there is a strong correlation between the Japanese consumer's desire to project an image of wealth and cosmopolitanism, and the strength of the luxury goods market. This is the psychology that Vertu should be aiming to tap into, as it cannot hope to compete with Japanese phones on technological terms.

Another of the many reasons for the success of luxury goods in the Japanese market, is a lack of space. With a large population and very little useable land, Japanese cities are crowded and urban homes are small compared to their western equivalents. The public transportation system is advanced and roads are congested, making commuting by car nonsensical. Japanese people are less inclined to display their wealth by buying a large car, or by home improvements, which peers would be unlikely to see anyway due to the private nature of Japanese families. Instead, Japanese people display their wealth and status by wearing expensive branded clothing and accessories (Chadha & Husband, 2006, p. 84).[77]

The luxury goods market is further fuelled by the Japanese urge to fit into a group. As discussed in Chapter 2, Japanese children are socialised to conform from a very early age, luxury goods provide a convenient way of fitting a particular image. Goods bought from luxury brands including Louis Vuitton, Coach and Hermes, are of high quality and serve only to enhance the owners

[77] N.B. This book is not highly academic in its style, however the author believes the analysis of Japanese culture to be correct.

image. Magazines containing little more than advertisements for branded goods, inform consumers of the correct purchases, and the obedient readers go out and buy those products. This type of shopping process in Japan is highly formulaic and easy for consumers to follow, and enables Japanese women to fit into their desired group with ease (Chadha & Husband, 2006, pp. 83-84).

Carving a niche in the luxury goods market is difficult, many of the European brands that have done particularly well in Japan, including Louis Vuitton and Rolex, have a long heritage, with a history of being used by aristocrats and royalty. The heritage factor is likely to be due to risk aversion (Hofstede, 1980, p. 154), a part of a more general conservatism discussed in Chapter 2, whereby brands with a proven track record over several decades, or even centuries, and which have discerning patrons, are less risky than those without. Another way Japanese consumers avoid risk, is by gathering information about products and services (Synodinos, 2001). A large readership of magazines and newspapers enable the diffusion information to a highly literate population, with television and the internet providing further opportunities for information gathering (Clammer, 1997, p. 29). All of these factors must be taken into account when launching a new brand. Vertu, is a mobile phone manufacturer without a significant history, a fact that is likely to work against the company in Japan. However, in late 2009 Nokia pulled out of the Japanese market, leaving Vertu in place, meaning that the brand must be doing sufficiently well not to pull out of the investment Nokia have made in order to try and break into the Japanese luxury goods market.

**Social Applications**

Mobile phones have, according to Katz and Sugiyama (2005), become a “socially significant device”, for many it is a fashion statement as well as a status symbol representing a user’s values and defining their image. For many others, it represents little more than an object which allows them communicate, for these users, little emotion is attached to the physical object, but they may have strong opinions about usability. To some, the mobile phone is like a ball and chain, connecting them to the office constantly, whereas for others, it symbolises freedom allowing them to connect with friends and family wherever they are. It is possible that the mobile phone can be

both of these things at the same time, especially now that the internet and mobile phones are coming together in a single product. One minute the user can be replying to a work related e-mail, the next they are arranging a meal with some friends over the phone. Whatever the mobile phone represents at any specific point in time, and a consumer's relationship with the product is likely to be constantly changing, it is an undeniably useful tool in bringing people together. This may be through subtle status updates via text messaging or email, or more overtly through conversation, but it is primarily a tool used for connection to information and to other people.

**Finance**

For those living in developing countries, the mobile phone can be used to check the price of produce before heading off to market. This can help to ensure that farmers are able to get the best possible price for their goods, saving them the time and expense of transporting their goods unnecessarily. Mobile banking has also helped many people in developing countries to access banking without the problems associated with traditional banks.

Vodafone's Corporate Responsibility project, Economic Empowerment Through Mobile, provides mobile banking for people in Africa. In Egypt, the company allows people to transfer credit from one phone to another. This allows those who would otherwise not be able to pay for phone credit conventionally, are able to receive credit from a friend or family member. In Kenya and South Africa, m-banking is a cheap, easy and increasingly popular way for people with limited capital to access banking. Though mobile phone penetration in developing countries is still relatively low, it is increasing rapidly, with more than 800 million phones sold in these markets between 2003 and 2006 (Vodafone, 2007). WIZZIT is a South African mobile banking service, targeted at low-income users. According to the Mobile Phone Banking and Low-Income Consumers: Evidence from South Africa survey, users of this service find it to be cheaper and more convenient than conventional banking, and did not have any significant usability issues. WIZZIT users enjoyed lower costs than traditional bank accounts because of its pay as you go system, therefore not charging monthly fees, and having no minimum balance requirements. Poor South Africans, especially those in the

countryside, have little access to traditional banking as transportation costs are often prohibitive, meaning that many of them remain outside of the banking system. This exposes them to risks including crime and financial crises. Friday night robberies on the township trains are commonplace as many South Africans are paid weekly in cash. Having a WIZZIT account negates this risk as account holders are able to have their salaries transferred directly into their accounts, and payments for many good and services can be made directly from the phone. As a marketing strategy, WIZZIT employs WIZZ Kids who are young people from low income areas. They are trained to explain the service to people form their own communities and earn commission for each new customer. Joining the service is quick and simple, with the user simply having to key their National Identity number into their phone (Vodafone, 2007).

In more developed countries, where the majority of the population lives in urban areas, banking is relatively straightforward, with branches easily accessible and credit readily available to those who can prove they have the ability to pay it back. However, even in countries where the traditional banking system is easy to use, the internet has made it even more so, with instant access to information about accounts and electronic transfer available without a time consuming visit to the local branch. Since internet penetration in developed countries such as the UK is high, there is little need for mobile banking as it operates in the developing world. However, the gradual closure of rural Post Offices in the UK, means that pensioners and the rural poor are experiencing problems with accessing finances (BBC News, 2006a) that could be alleviated with a mobile banking system similar to South Africa's WIZZIT or Kenya's M-pesa.

In designing a simple system that allows mobile phone users to access their bank account, companies such as WIZZIT pioneer new uses for what was once a simple communications technology. The LCD screen is the pivotal design feature allowing ever more uses for mobile phones. Despite being the most important design feature, judging by the uptake of touch-screen technologies in the late 2000s, the screen will eventually become the primary interface. For services such as banking it is not only the screen that is important, but also the ability to type and

send messages. These are the functions which start to make handset design more complicated. The most basic functions expected on a mobile phone are the ability to make calls, and the ability to send text messages, though there are a whole host of other functions that consumers have come to expect their mobile phones to perform.

**Work**

Mobile phones were originally used by executives so that they could do business wherever they were. The 1987 film *Wall Street* was the first use of mobile phones in cinema, and portrayed Michael Douglas as a stereotypical arrogant high-flying executive. Since then the mobile phone has become an important product for a large number of jobs from salesmen checking in at the office, to PAs who co-ordinate their boss's calendar.

Research in Motion's Blackberry was a design innovation that allowed executives to check and send emails whilst on the move. The QWERTY keyboard made the phone larger than standard models, but also allowed for a larger screen. Later innovations of similar phones have the keyboard tucked away so that it slides out only when in use. Following on from the large screen and QWERTY configuration, the iPhone's touch-screen is large enough to allow a full keyboard to be visible on the screen whilst a message is being typed. The Blackberry Storm has also adopted this approach, but uses haptics to help the user identify when they have pressed something on the touch-screen. Though these handsets can be used by anyone, they are most appropriate for a work environment, mainly because they are more expensive to buy and use than conventional handsets, but also because they contain features such as document viewers and calendars designed to assist people in doing work related tasks.

With the ability to check email communications, answer queries and edit documents, the business user becomes more mobile. This, theoretically, frees them up to spend more time outside the office. Although this may be true, it is also the case that many workers who use these devices feel that they are unable to relax at the weekend or whilst on holiday, because they might need to take

a call or do some work. The 24 hour work environment that has been created by the mobile phone should make each employee more productive and efficient, in which case this would contribute considerably to the economy. However the effect of the mobile phone has been overshadowed by the internet, in its ability to move information around the globe instantly. Without the internet, the mobile phone's economic contribution would be far less significant. Socially however, switching from a society whereby work and home lives are separate, to one where employees can be reached at any time has negatively affected stress at work, by making it difficult for people to escape (Glotz, Bertschi, & Locke, 2005, p. 279). Reporting of stress related conditions at work has increased since 1990 (Stansfeld et al., 2004). However, due to the stigmatisation of mental health disorders, and lack of public information about them, it is difficult to tell whether the increase in stress related conditions is significantly affected by a combination of increased reporting in the media resulting in a breakdown of social taboos. Therefore, although it can be said that mobile phones almost certainly have some role to play in increasing work related stress, their effect is difficult to quantify for the purposes of this thesis.

**Employment**

In Britain the introduction of mobile phones and the internet in the 1990s, saw a significant increase in the numbers employed by the telecommunications industry. Between 1993 and 2004 total industry employment went up from under 168,000 to over 264,000, equivalent to 0.68% and 0.93% of total employment over all sectors, or a 37% increase. The most significant increase was in the number of jobs for women, whose numbers in the industry almost doubled during this period, increasing from 43,000 to 78,000 (European Industrial Relations Observatory Online, n.d.). The increase in the number of women is likely to be related to the fact that the mobile phone is a consumer product sold in retail outlets, and also because of the requirement for substantial customer service. In 2008, there were far more women than men working in administration, sales and customer service (National Statistics, 2008). Almost all of the increase in employment related to the telecommunications industry is in the service sector.

In terms of design, since the majority of handsets bought by British people are designed outside the UK, the impact upon employment is not immediately obvious. However there has been a significant impact upon the design industry in terms of producing marketing materials for mobile phones and related products and services. Web design and interface design are areas which have developed alongside the internet, and have become increasingly important as technologies behind mobile phones and computers have become more sophisticated. British companies such as Symbian have expanded into Japan where their expertise in designing interfaces has been utilised by major mobile phone companies including NTT Docomo.

**Health**

The long term effects of mobile phones on health are yet to be determined. Radio waves are known to be damaging to human tissue at certain frequencies (T. N. Davies, 1980), but the extent of this remains unclear. Wireless networks are increasingly ubiquitous, they are also becoming more powerful. Whether they damage tissue or not, mobile phones have brought health benefits in terms of access to emergency services from remote areas. They can also be useful for elderly people who wish to maintain independence and live in their own homes for as long as possible. Japanese companies have taken the lead in designing handsets specifically for older consumers with both their Rakuraku phones and also a handset that alerts family members when it is placed in its charge cradle every evening. This offers family members the piece of mind of knowing that their relative is still mobile, and provides the elderly person with some comfort in knowing that their family will be alerted to any irregular behaviour.

**Education**

The potential benefits to education of mobile phones and related communications technologies have not yet been fully realised. As use of the internet via the mobile phone increases, instant access to information from any location is rapidly becoming the norm in both Japan and the UK. Currently it is possible to access information, but with the exception of a few products, obtaining it is relatively slow and the screen too small for it to be easily used. Although these are partly

technical issues, screen ratio and click distance can also be resolved through innovative design. Now that these problems are being overcome, it is feasible that the mobile phone could become a powerful educational tool. There have already been trials using PDAs to facilitate learning, and it has been found that using this technology has a positive effect on the attainment of children, particularly boys (BBC News, 2007). Children increasingly expect their world to be interactive, many of them own mobile phones, computers or games consoles from an early age, and learn how to use these technologies more proficiently than their parents' generation. Education systems need to keep up with advances in technology in order to engage these children and teach them relevant skills. PDAs, netbooks,[78] and increasingly mobile phones can access information on the internet and be used to create and edit documents.

**Crime**

Theft is not the only crime associated with the increase in mobile phone ownership. Though it would appear that street crime such as mugging and theft has increased significantly in the UK since 2000 (Johnston, 2006),[79] camera enabled mobile phones have created a whole host of problems of their own. "Happy slapping" is a media-coined term for the use of a mobile phone camera to film a violent episode such as a mugging It has been widely reported in the UK since 1999 and there have even been some acts of murder and manslaughter filmed on mobile phone cameras with most of the protagonists being youths, many of them under eighteen years old (Hallsworth, 2005, pp. 110-112). The camera phone has been used for sex crimes including, taking pictures up the skirts of girls standing on escalators, in changing rooms and at swimming pools. This has led to a series of new laws being introduced to curb crime associated with camera phones (Johnston, 2006). The addition of a high quality camera function creates further problems with intellectual property, and has forced many companies to ban them from sensitive areas such as labs. For corporations, there is also fear that the camera phone could be implicated in law suits where employees have been photographed at work in compromising situations, such as using the

[78] Small light versions of a laptop designed primarily for web access.

[79] It should be noted that crime statistics are dependent upon victims reporting the crime. Changes to crime reporting and recording can therefore lead to deceptive shifts in crime figures.

toilet or behaving inappropriately at a work related social event, and where these photographs have caused the subject distress (Thomas, 2004, p. 142).

**Intellectual Property and Downloaded Media**

The theft of intellectual property is a problem for musicians, artist and authors as well as anyone who works in the creative industries. The ability to download media files has further exacerbated this problem, as files can easily be transferred between phones using Bluetooth technology. This problem has been documented in South Korea, when LG faced a legal battle with music IP regulators, ignited by the Korea Association of Phonogram Producers (Schultz, 2004). The British government also has legitimate concerns about the protection of IP in the digital age, with substantial debate on the balance between a safe regulatory environment and a free atmosphere which promotes innovation. The creative industries make up a substantial proportion of the British economy and it is in the government's interest to both promote them further, whilst protecting them from IP theft such as the illegal downloading of music and images (Department for Culture Media and Sport, 2007). A further, less common IP problem is with the copying of the phones themselves, in 2006, a Chinese company released the Nokir E828, an exact copy of the Nokia N73. China is a legal minefield for many multinationals. Although manufacturing is cheap, the problems associated with a communist government and a loose interpretation of the law, make it a high risk market (Constantinesceau, 2007). 90% of Japanese music downloads are on mobile phones (McClure, 2006). Although full song downloads were only introduced in 2006, and PC based downloads have been available for several years, Japanese consumers on the whole use their mobile phones for far more hours in the day than they use a PC. This is partly because, on average, they spend less time at home than people in other similarly developed societies. Long working hours/commutes, and cramped living conditions are two explanations for this phenomena.

Since the majority of iPod users are in their 20s and 30s, KDDI have aimed their product at a younger market, who do not want to spend money on a separate music player if their phone can do the same job just as efficiently. Their Lismo service, is similar to iTunes in that it is a software

based online market, allowing users to upload their CD collections, and also manages photos, calendars, and e-mail. One feature of Lismo that is designed especially for the highly group orientated Japanese consumer, is a GPS tracking facility, allowing users to see what others in the same area are listening to. NTT Docomo, who bought a 42% stake in Tower Records Japan in November 2005, launched Napster, an online file sharing company, one year later (Wireless Watch Japan, 2005). In order to accommodate for the weight of files involved in multimedia downloads, a variety of new handsets are being launched with high capacity hard drives and excess storage available on memory sticks.

Books that can be downloaded to a handset are popular in Japan. The books that sell best are new novels that have not been released as paperbacks. In recent years, publishers have had to re-think sales channels, partly due to the the popularity of Book-Off, a chain of shops that sells second-hand books for around a third of their cover price (The Economist, 2007, May 26). One result of the 15 year economic downturn in Japan has been the emergence of a second hand market for consumer goods. Before the collapse of the Bubble Economy, in the years following its peak in 1989, second-hand products were not popular. However, the long-term economic slump has had dire consequences for consumer spending. Falling disposable incomes means that people have become far more conscious of their spending, and discount stores such as Book-off and Daiso, the 100 yen shop have thrived (Bonner & Wiggin, 2003, p. 266; Nakata, 2010; Yoshikawa, Bhattacharya, & Vogt, 1996). With demand for traditional products low, cheap, downloadable books and music, are both economical and environmentally friendly, appealing to younger consumers with small disposable incomes.

**Bringing People Together**

Mobile phones have proven invaluable to groups wishing to assemble for protests and other gatherings which need to be arranged quickly. As a portable and convenient form of communication, the mobile phone has taken on new unforeseen uses which defy control by the authorities. Groups can quickly be assembled using an SMS chain, which can be rapidly

distributed so that demonstrations can be quickly assembled. This method has been use in the Philippines since 2001 (The Economist, 2007, November 29), but has also been deployed in China (Anderson, 2005), Ukraine and Cambodia where mobile phones are less easily traceable than they are in more developed countries such as Britain and the United States (Zuckerman, 2007, September 4). Text messaging has also been used for more positive forms of assembly, such as flash mobs, which are organised groups who turn up at a specific place to perform a specific task, then disperse as though the event had never taken place. Alternatively, SMS can be used to send out instructions to volunteers or concert attendees, with information about location and transport options. Companies such as Tixmob, a mobile ticketing agency, and RockCorps, a company that promotes volunteering (see Chapter 4), have both used SMS to guide consumers, and to help them have a good time at their events.

**Summary**

Mobile phones have a relatively short history, but their rate of development has been unprecedented. With the help of microprocessors and enhanced battery technologies, handsets have been able to shrink considerably from their original size, whilst their functionality has increased dramatically. Following the LG Prada and Apple's iPhone, there was an upsurge in the range of touch-screen phones available. The European market has already seen the release of a number of new touch-screen models. This allows for a larger screen and for the elimination of mechanical buttons. A gradual disappearance of mechanical functions, will change the design landscape, with differentiation between models becoming more difficult. User interfaces will become more important, as consumers demand intuitive products. In Japan, consumers are not yet demanding touch-screen products to the same extent as British consumers. Interestingly, the first range of phones available to Docomo customers in 2009 included more products from non-Japanese manufacturers than ever before, indicating a shift in Japanese consumer tastes, and providing evidence that non-Japanese handset manufacturers have finally caught up with those in Japan. The addition of a significant range of non-Japanese manufactured handsets to Japan's nationalist and insular telecommunications industry is highly symbolic and indicates the end of an

era for Japanese electronics. Signs of Japan's consumer electronics decline have been around for a long time, with the rise of the Korean manufacturers LG and Samsung in particular, but also with the increasing popularity of Apple products and a flood of cheap gadgets made in China being distributed throughout the world. However, Japan's consumers have thus far not been offered a significant range of non-Japanese electronic products. With its previous reputation for producing high-quality, high-tech mobile phone handsets, and an almost exclusively Japanese stranglehold over the domestic market, the introduction and increasing success of foreign handsets signifies a definite downshift in the domestic electronics industry that will be difficult to counter for Japanese manufacturers.

# Chapter 4: Mobile Phone-Related Social Phenomena

The positive functions of the mobile phone are obvious to most consumers, proof for this can be seen in the sheer number of mobile phone owners. They provide solutions to everyday communication needs and are invaluable in emergencies. The basic principle of economics is that human beings are motivated by incentives (Levitt & Dubner, 2009, p. xii). As such, consumers will only buy a product that offers value for money relative to the perceived benefits of ownership, including the perceived psychological benefits such as improved social status and individuality (Dittmar, 2007, pp. 52-53).[80] As a peer to peer communication tool, the benefits of mobile phone ownership increase in line with ownership among one's peer group. As ownership increases among group members, and individuals are able to contact each other and be contacted, late adopters risk becoming socially excluded, increasing the pressure to buy a mobile phone. It is for this reason that mobile phone ownership increased at an exponential rate during the late 1990s and early 2000s (see graphs 5-7 on page 137). At this time, barriers to ownership, especially price, were all but eliminated for the majority of the population, with cheap handsets and pay-as-you-go pricing in the UK, and with subsidized handsets becoming available in Japan (Jelassi & Enders, 2005, p. 587).[81] Initially, many people bought mobile phones for security reasons, whether it be for keeping in the car in case of an emergency, or for a teenaged child to call parents late at night (Oksman & Rautianen, 2002). As costs dropped, ownership became less concerned with security and more about day-to-day practicality, not to mention the perceived status benefits implied by owning the latest high-tech handset.

The fact that the majority of the populations of both Britain (115% in 2007, though this is counting duplicate accounts such as those with both work and personal phones) and Japan (75% in 2007) own mobile phones, makes it an undeniably useful product for a contemporary lifestyle (The

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[80] The factors affecting purchase decisions were laid out and assessed on a 6 point scale constructed by Dittmar and Halliwell. Though practicality and value for money were rated most highly, pleasure in purchase and the social meanings of ownership, were also rated as very important by consumers.

[81] See Table 4. showing a rapid drop in Average Revenue Per User (ARPU), halving between 1995 and 1998

Economist, 2007e). However, resistance to the mobile phone remains strong among some demographics, especially older consumers (Laukkanen, Sinkkonen, Kivijärvi, & Laukkanen, 2007). Mobile phones have also spawned an array of social phenomena, changing the nature of public space, and been implicated in creating a variety of social problems. Patterns of communication first began to shift when pagers became a consumer product in the early 1990s, but once the mobile phone crossed over to the mainstream from its original role as an executive status symbol, this rate of change began to occur more rapidly. In both Japan and Britain it is rare to find anyone who remains unaffected by mobile communications technologies. Children born in the 1990s have grown up surrounded by mobile phones and computers; those born before this have been introduced to these technologies at various stages of their lives. Those brought up around communications technologies, such as the internet and the mobile phone, in their homes and at school, are likely to use them on a regular basis. The most prominent changes due to mobile phones and similar technologies will occur during the transitional time frame observed in this thesis. From the 1980s when mobile phones were introduced but were not a consumer product, to 2010, when ownership is the norm.

This Chapter will address some of the social phenomena that have come about either directly or indirectly since the mobile phone has become an everyday consumer product. Topics addressed include deviant behavior, psychological costs and benefits, and issues affecting children, as well as investigating the ways in which the mobile phone has become symbolic. Though the range of topics is varied, each of them has either been affected by or had some effect on, the design of mobile phones. It is therefore important to address the social phenomena that have come about because of this product.

**Cultural Lag**

In order to provide some background into the relationship between technology and society it is useful to understand the theory of cultural lag. Coined by W.F Ogburn in his 1922 book *Social Change*, ‘cultural lag’ explains the way in which social change inevitably lags behind technological

development (Agassi, 1981, pp. 119-120). In terms of technology, this means that although a technology exists, it remains controversial until a significant proportion of the population has accepted it. One example of this is stem cell research which has moral implications related to religious beliefs and differing perspectives on the beginning of human life (Halliwell & Morley, 2008, p. 165). With the mobile phone, cultural lag is layered with the question of necessity, and the cost-benefit analysis associated with ownership (Ram & Sheth, 1989).[82] As with many new technologies, when they were first introduced, many people considered mobile phones a luxury item for businessmen and not a necessity for everyday life (Lindholm et al., 2003, p. 16). Early adopters are willing to pay a premium for the prestige of owning the newest technology, despite being aware that the product in question will inevitably drop in price and that there are often glitches in early models. Men tend to be the earliest adopters of new technologies; this was particularly true of the mobile phone when it was a business tool, but as a consumer product both men and women use them regularly, if perhaps in slightly different ways (Ito et al., 2005, pp. 227-228). As mobile phones have dropped in price and become increasingly common, they have come to be regarded as less of a status symbol and more as an essential communication tool.

Part of the reason for cultural lag with mobile phones is the fact that in the early 1990s, when mobile phones were yet to become a mass consumer product, the telecommunications infrastructure was insufficient, with networks covering only a relatively small proportion of the population. The lack of coverage created a situation whereby people were unwilling to buy a mobile phone that could only be used in particular areas, thereby forcing mobile phone operators to invest heavily in increasing coverage (Bridgewater & Doyle, 1998, pp. 143-144). As coverage increased, so too did users, buoyed by news of better product and network reliability. An increase in users created economies of scale (Vesa, 2005, pp. 182-183), lowering the price of mobile phone ownership and the cost of installing new masts, resulting in unprecedented growth in mobile phone subscribers in the mid-1990s in both Japan and the UK (see Graphs 5-7). It was only once mobile phone subscribers reached critical mass among particular demographics, namely teenagers and

[82] Referred to here, as the “value barrier”

young people, that mobile-related social phenomena began to attract media attention.

**Graph 5.** Mobile phone subscribers in the UK

As in Japan, below, 1994 saw a sharp rise in sales. From 1994 to 2000 growth becomes exponential, then evens out as the market nears saturation point.

http://www.mobilemastinfo.com/information/history.htm accessed 23/06/2008

**Graph 6.** Mobile phone subscribers in Japan 1988-2002

A sudden drop in price after the Docomo spin off, caused a sharp rise in handset sales, pushing prices down across the industry. N.B. The numbers on the chart need to be divided by a factor of 10, i.e., in 2000, there were 60 million not 600 million.

Compiled by KDDI R&D Laboratory, Kobayashi, A. http://www.idealliance.org/papers/xml2001papers/tm/web/05-05-05/05-05-05.htm accessed 24/06/2008

**Graph 7.** Figures for Japan from 2000-2007. Uptake tails off as the market reaches saturation point.

Ministry of Internal Affairs and Communications, February 27th, 2008, Press Release, Status of Numbers of Subscribers to Telecommunications Services

**Pagers and Text Language**

This section gives a brief overview of the importance of the pager as a stepping stone to the mobile phone. The pager was the first communication device to make use of the LCD screen which, as has been established in this thesis, was of major importance in enhancing the usability of future communications devices. Before the mobile phone became financially viable, the only means of communicating with people on the move was by using pagers. In Japan during the early 1990s, there was a brief period when pagers became a fashionable and affordable means of communication (Kraut, Brynin, & Kiesler, 2006, p. 243). Prior to this, pagers had been a business tool which simply beeped in order to indicate that the recipient should call their office, with subscriptions being primarily taken out by companies. However, as prices dropped and pagers displaying a callback number on the terminal were introduced, Japanese young people began to adopt pagers as a fun and convenient way of communicating with their friends, such that, in 1993 it is estimated that 80% of new pager subscribers were in their teens and twenties. Due to this rapid uptake of pagers, a culture grew up around their use (Ito et al., 2005, pp. 35-51). Early pagers aimed at the consumer market, rather than for businesses, were only capable of showing numbers on their LCD screens. According to Katz and Aakhus (2002), young pager users developed a code using these numbers allowing them to express themselves without having to make a voice call. Later models of pager allowed the caller to leave a short message, with teenagers using the pager to send their friends greetings and other unimportant communications that they felt would not warrant a phone call. This messaging phenomenon continued in the form of text messages once mobile phones became popular, with abbreviations and acronyms being invented to shorten the message in order to keep it within the 100 character limit required by SMS. The coding of SMS has been mirrored in Britain and throughout the world, the language often being peppered with English abbreviations or in more multi-lingual countries, whatever language has the shortest, most convenient phrase (James Everett Katz & Aakhus, 2002, p. 184).

**SMS or Texting**[83]

This section will explore the economic and social phenomenon of text based communications (SMS and email) and how this has impacted the design of the mobile phone. As consumers began to migrate from pagers to mobile phones, spawning a new way of using them. This was being discovered virally by young people, utilising a functionality that was originally intended to be secondary to the voice call (Koskinen, 2007, p. 7). The explosion in text usage came as a surprise to manufacturers and networks. The text messaging phenomenon was made possible by the LCD screen, which has increased in size to allow for more complex user interfaces and increasing functionality. Due to the popularity of both email and SMS, alongside impromptu linguistic alterations invented as shorthand, manufacturers have developed predictive text input software which allows users to send messages more quickly.

In both Britain and Japan, written messages are immensely popular, particularly amongst younger users. In Britain what is referred to as “texting” quickly evolved into an elaborate language of its own due to a character limit of 160, and the cost of sending an individual message, around 10p. Text language includes words such as b4 (before) and cu l8r (see you later), and has been criticized by educators and the media when these spellings began to appear in exam papers submitted by pupils (BBC News, 2005). The widespread use of text language has spread to applications such as online instant messenger services to avoid unnecessary typing. Abbreviations of the English language, such as, lol (laugh out loud) and brb (be right back) are frequently used when chatting on instant messenger services such as MSN Messenger and social networking sites such as Facebook. Again these abbreviations, although rarely appropriate for use in an exam situation, are often criticized for altering or dumbing down the local language (Kasesniemi & Rautianen, 2002, p. 184). The adoption of text language, provides a vivid example of the way in which societal change has been brought about by the mobile phone. In physical design terms the growth of texting has meant an increased importance of lettering on the keys, and the addition of

[83] Text messaging evolved from a function which was put in place as a European industry standard, which was then discovered and rapidly adopted by younger users as a quick and entertaining way to compliment conventional phone conversations. More on this can be found in Dan Steinbock’s *The Mobile Revolution: the making of mobile services worldwide,* 2005, London: Kogan Page

an array of message enhancing functions in the user interface.

Text messages in Japan are mostly sent in the form of email. Each message is capable of holding around 500 characters (however, due to their complexity, one Japanese character takes up the same space as two alphabet characters), and costing between 1p and 3p to send, depending on the length of the message. In Japan, because it is possible to send longer messages, text language has not evolved into an elaborate shorthand in the same way as it has for many in the UK. However the use of *eimoji* or picture characters is far more prevalent amongst young Japanese (see photograph of Sony Ericsson C902). *Eimoji* include those that are programmed into the phone similar to emoticons, as well as expressive characters made from combinations of punctuation marks for example \(^o^)/ denotes cheering, while (;_;) represents a crying face. British users have similar, but more simplified characters but these are usually on their side ;) for a winking face and :( to show sadness (on many phone models, including late 2000s Sony Ericsson models such as the K850i or C902, typing in these characters automatically converts the punctuation into a picture character). These characters compliment the messages and allow those receiving the message to understand the context better than they would if it was purely text, which can be ambiguous. Using the face characters it is possible to ensure the recipient is aware that the message content is intended as a joke, or that the sender is upset about something, this is useful for text-based social interaction in order to avoid misunderstandings. In comparison to Americans and especially Latin Americans, the British and Japanese are known for being less able to express emotion (D. A. Foster, 1992, p. 159). The text message is beneficial as it is possible to think through a response before sending a reply. However the character limit of the UK text message (160 characters per message), requires users to be concise, and this can often mean that they sound unnecessarily abrupt. This is less of a problem in Japanese, where push e-mail was introduced in 1999, early in the development of consumer mobile phones, meaning that messages could be longer.

Sending messages on a mobile phone is immensely popular, with many people sending hundreds

of messages or emails every month. According to the UK Mobile Trends Report for Q4 2008, the number of text messages sent has increased 38% to 78.9 billion messages per year. This translates to 1,213 messages per user, or around 100 per month per user (Doran, 2009). The popularity of messaging means that click distance and ease of use of messaging software must be carefully considered in handset design. That this is translating into design is noticeable, and Blackberry has long used the QWERTY keypad layout to make typing more convenient for those accustomed to computer keyboards. Many touch-screen phones also have a QWERTY option. Other handsets have stuck to the traditional 12 button formula, and have shortcuts within the interface to allow users to write messages as easily as possible.

**Personal Safety and Security**

The mobile phone has two functions in terms of our personal safety and security. It simultaneously makes us more likely to be the victim of robbery (O'Neill, 2001), and reassures us that in the event of any danger or uncertainty, we are able to contact the necessary people quickly and easily. In this next section the extent to which the mobile phone has affected our perceptions of safety and security, and the aspects of design that have been affected by this will be addressed. This will be followed up in the next chapter with a more in-depth analysis of the design features that have been developed to enhance our perception of security.

According to the anthropologist Kate Fox,[84] the mobile phone and, in particular, the ability to send short, frequent text messages has "restored our sense of connection and community" and created a "village green" type community. This sense of constant connection is comforting to many. *The Mobile Life Report* (2006),[85] found that 82% of women and 49% of men felt safer if carrying a mobile when out and about. The mobile is also used by women to avoid unwanted attention, 54%

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[84] Fox is head of the Social Issues Research Centre (SIRC) and is a fellow of the Institute for Cultural Research, she has written a number of books on social behavior including Watching the English, 2004 and Drinking and Public Disorder, with Peter Marsh.

[85] *The Mobile Life Report* is an annual publication by the Carphone Warehouse, not of academic standing in itself, but it does commission research by major academic contributors such as Kate Fox and Carsten Sorenson (London School of Economics).

of young women sometimes use their mobile to deter people from approaching. The importance placed upon mobile phone ownership as a psychological security blanket further increases its social significance (Fox, 2004, p. 86).

One aspect of personal safety that has been addressed by major Japanese handset manufacturers is that of personal injury. This is more likely for elderly and disabled consumers and, as such, Japanese manufacturers have designed a number of handsets specifically for older consumers, as described in Chapter 3. These handsets are easy to use, with basic functionality and often specially designed features to help the user. In late 2009 the Docomo's most up-to-date model contained: large text, well-labelled buttons, voice input email composition, a magnifying function for reading small text, single handed operation, up to 1 month of battery life and a self orientating map. The availability of this type of handset is reassuring to older consumers and their families, who may not be able to spend significant time together. For more details on phones for the elderly see page 89.

Although mobile phones have many positive security features, they are also an attractive target for criminals, as they are often the most valuable single item a person carries with them, and are usually kept in easily accessible bags or pockets (Hallsworth, 2005, pp. 110-112). British crime figures published in July 2006 indicated that the 8% rise in muggings on the previous years figures, was due to more people carrying mobile phones and other expensive electronic items such as MP3 players. Government crime statistics published by the Home Office show that robbery and crimes against the person (street crime) have increased whilst most other types of crime have dropped (Home Office, 2006). Street crime used to be far less of a problem in Japan: mugging was virtually unheard of, but in recent years crime rates have soared: "between 1998 and 2002, robbery increased 104%" (Curtin, 2004). Various theories have been constructed to explain the rapid increase in Japan's crime rate.

Many Japanese lawmakers as well as senior police officers have pinned the blame for the

> crime wave on delinquent youths and foreign criminals, labeling these two groups "the twin causes of rising crime". Although detailed analysis of the crime statistics disproves the youth-and-foreigners notion, the media have tended to side with lawmakers who have promoted this idea. Large swaths of public opinion believe that these two groups - youth and foreigners - are responsible for most crimes, even though they only comprise small groups in the overall crime figures. (Curtin, 2004)

The real causes are more likely to be increasing income disparity, a gradual disappearance of social cohesion and a legal system without the capacity to cope with the increasing crime rate. The rhetoric and government propaganda states otherwise, with foreign nationals being blamed for the majority of the increase in crime rate.

Design features related to personal safety include, the addition of an alarm onto phones designed for children (Japan), thumb print readers for unlocking handsets (Japan) and the ability to disable a handset remotely. It is interesting to note that two out of three of these features are available in Japan, but seemingly not in the UK, indicating that British consumers are perhaps less concerned about their personal safety, despite crime statistics indicating that they have more cause for concern. However, despite the deliberate addition of specific safety related features, it is likely that the most valuable feature of the mobile phone is the psychological reassurance that friends and family are easily reachable in the event of an emergency (Newman, 2007).

**Mobile Phones and Public Transport**

One of the most useful functions of mobile phone ownership is the ability to inform people of location and make changes to journeys as appropriate. For this reason, public transportation is a place where mobile phones are used frequently and often for long periods of time. Evidence for this can be found in stations and on trains and buses, with several people either on the phone or sending messages at any one time. The mobile phone provides a convenient way of passing the time, whilst waiting for or riding on public transportation. The way mobiles are used on public

transport has evolved since their appearance in the mid-1990s. Just as the land-line telephone changed the way people communicate, so too has the mobile phone. In allowing us to have simultaneous presence in two or more locations, one of which is physical the other being virtual, and enabling us to access information and media whenever and wherever we choose, communication devices such as the mobile phone change the nature of place and our concept of time (Caporael & Xie, 2006). As people navigate through the public transportation system, they are able to use their phones to provide them with information. It is possible to find out the location of someone else and adapt journeys, or to change their route according to local traffic information. Parallel to this ever increasing access to both people and information, social norms have developed surrounding the use of mobile phones in public places including public transport.

In Japan, where the use of public announcements over public address systems and in the form of written instructions is common, there are instructions on the polite use of mobiles on most forms of public transport. While it is possible to use mobiles on virtually all forms of transport, including the subway, it is regarded as highly inappropriate to take voice calls whilst in a carriage or on a bus with others. Passengers are asked to engage “manner mode” or silent and to turn off their phones completely near to the priority seats reserved for people who are physically disabled, elderly or pregnant, as it is thought that the radio waves produced by mobiles have the potential to interfere with pacemakers. Though few people turn their phones off completely whilst travelling, silent mode is generally observed, and it is rare to see somebody conducting a voice call whilst in transit (Kitamura, Yoshii, & Yamamoto, 2009, p. 61).

In Britain, the rules are less clearly defined. Announcements on public transport are less frequent and written information is minimal in comparison to Japan. There are often designated quiet carriages on trains, where phone conversations, music and loud conversations are discouraged, but otherwise it is left up to the individual to decide how they wish to conduct themselves regarding the use of mobile phones. It has been observed by the anthropologist Kate Fox that mobile phone use has formed its own etiquette, subscribed to by many and ignored by others (Fox, 2004, pp.

84-87). Rules related to public transport are similar to those encouraged by the posters and announcements on Japanese mass transit systems, voice calls and loud ring tones in crowded places are frowned upon, whereas the use of text messaging and other silent functions are regarded as acceptable (Ito et al., 2005, p. 213).

Functions such as silent mode, whereby it is possible to set the phone to vibrate instead of ring, was an early and remains universal to all handsets, as it has proven essential for discreet phone use in public places. Originally, many handsets made a noise every time a key was pressed, the ability to turn these noises off has made the mobile phone more tolerable to other people. Other less prominent features include, the addition of a removable headset for listening to music, a piece of equipment which is also thought to serve as a safety feature enabling users to talk on the phone without the microwaves produced by the handset traveling through the brain (Cohen, 2008).

**Children and Teenagers**

This section explores the different effects the mobile phone has had on the nature of childhood and the behavior of children. Mobile phones are often given to children, so that they can contact a parent and can easily be contacted. This has a dual effect, whereby children are free to go out without supervision, but are within easy reach of their parents. Theoretically this should give parents the piece of mind to allow children to roam further afield and to use public transport etc. However, in Britain, for reasons unconnected to the mobile phone, British children are spending less time outside than in previous generations (Waller, 2005, p. 49). According to the author's observations made as a part-time elementary school teacher during the early 2000s, Japanese children attending private schools or those who use public transport alone (these groups often overlap) were more likely to have their own mobile phone. However, according to the GSM Association's data, by 2009 by the age of 12, 91% of Japanese children have a mobile phone, jumping from 70% of 11 year olds, and 45% of 10 year olds, indicating that the mobile phone has to some extent become a rite of passage for Junior High School students (NTT Docomo & The GSM Association, 2009). Miyaki's research on mobile phone use by elementary and junior high

school students (aged between 9 and 14) in Japan reveals that, though many children are keen to own mobile phones, many also have concerns about possible antisocial behavior that ownership brings (Miyaki, 2005).

As the number of mobiles owned by children and teenagers increases in both Japan and the UK, new forms of social interaction are emerging. Media reports of a crime known as “happy slapping” began in the UK in 2004, around the time the camera/video phone became popular. Happy slapping refers to a crime whereby a victim is attacked, seemingly for the purpose of filming the incident on a mobile device. However, there is little evidence to suggest that this is anything other than a media phenomenon (Saunders, 2005). Despite documenting these crimes and providing a distribution medium, thereby providing evidence for the prosecution, the mobile phone did not play a significant role in these acts of violence. Other examples of misuse of camera and video functionality on mobile phones includes, the circulation of indecent images or videos of peers, and bullying using text messages (Henderson, 2007, pp. 161-162).

In Japan, concern over children and young people becoming involved with *enjou kousai* or teenaged prostitution is justified by the 2000% rise in the number of arrests relating to child pornography or child prostitution arranged over the mobile internet between 2000 and 2002 (Kingston, 2005, p. 273). However, it should be noted that these statistics are dramatic because both child pornography and prostitution were only made criminal offenses in 1999, following international pressure to clampdown on the Japanese child pornography industry estimated to make up about 80% of global output at the time (Goodman, 2000, p. 169). Despite these new laws, there has been little change in people’s attitude towards the sex industry, in which underage prostitution is still widely tolerated as long as it is not happening to a member of their own family.[86]

The mobile phone allows teenagers to escape existing social spheres, and to some extent their parents’ surveillance. One area that has been highlighted by the media in both Japan and the UK,

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[86] Author’s own investigations, gauging attitudes to the sex industry among Japanese friends and colleagues

is the advantage of online anonymity, for paedophiles and other types of criminal. This is also an advantage for general users of dating sites and chat rooms, where users can create an online persona that may be nothing like their real age or everyday personality, meeting others who may or may not be doing the same thing. In the past, phone conversations had to be conducted on a shared phone, usually placed in a public area of the house. This meant that others were able to overhear conversations. It also meant that whoever was making the phone call had to take the chance that somebody other than the intended recipient would answer the phone. Now calls can be made directly to an individual's mobile, it is far easier for people to withhold information from other members of the family (Caron & Caronia, 2007, pp. 65-66). This can be dangerous, if the protagonist persuades the victim to meet. Children can easily become the victim of this type of deception, and there have been cases of abduction and sexual abuse resulting from these meetings (Weathers, 2008). The mobile phone facilitates these meeting as they allow children and teenagers to communicate outside of their parent's control.

Concerns over mobile phone use, and by implication abuse, among children and young people are mainly concerns related to the use of screen-based media. Text messages, games, videos and photographs are all areas of concern for parents and the media. Thus far identified in this thesis as the single most important design feature on the mobile phone, it should be noted that the screen also has potentially negative functions. These concerns, are largely about adults' ability to control young people's communications. As yet, it is difficult for parents to control access to mobile internet content on their child's phone. In Japan, this has been addressed by NTT Docomo, who offer parents a specially designed children's phone with the ability to control access to websites, games and use of the camera (NTT Docomo, n.d.-d). However, for many parents with teenaged children, the possibility of their child being the victim of mobile phone related bullying or other forms of abuse remains a serious worry. The potentially negative consequences of mobile phone ownership, particularly for young people, are the direct result of increased functionality, designed to benefit the majority of consumers. The fact that a mobile phone handset invariably belongs to an individual, makes the restriction of its use difficult. Therefore the problems associated with mobile

phones and young people cannot be solved through improved product design, any solution needs to be developed by society. It is this idea that will be discussed in the next section.

**Experiential Marketing and British Mobile Networks**

Design stretches beyond the basic confines of the product. This is particularly true of mobile phone networks that need to consider a wide range of factors in the continued patronage of their consumers. Mobile phone networks understand that, as a utility, they need to constantly engage with their consumers to prevent them from switching to alternative networks. This is particularly true in the UK where around 60% of consumers are on pay-as-you-go contracts (Salz, 2009, p. 345). Average revenue per user (ARPU) is constantly dropping as networks compete to undercut their rivals, so networks must find other ways to differentiate themselves from other companies and boost their revenue stream. Sponsorship is increasingly being used as a form of Corporate Social Responsibility (CSR) and Cause Related Marketing, or CRM. If it were not for gains in public relations, it is unlikely that CSR would exist, but it has become increasingly important both as the social and environmental impacts of business have become hot topics in the media. This will be explored in the next section as experiential marketing is becoming a core part of the user experience, and is therefore a relevant social phenomenon from a design perspective.

It is possible to argue that CRM by mobile phone companies was pioneered in Japan with the development of user centred designs such as the Rakuraku Phone for elderly consumers. The use of recycled or recyclable materials in the casing of the handset is another example of a very direct form of CRM. In developing products such as the Rakuraku phone and a device for tracking the location of children, Japanese companies have used design to address social issues directly, this approach could therefore be termed cause-related product design as the marketing is secondary to the product. This is not the approach that has been taken by British companies, which have tended to go achieve similar goals via corporate sponsorship. The results of sponsorship are more difficult to track than sales figures for products designed with a social goal in mind. Therefore it is necessary to explain their role in more detail as outlined below.

Since 1995, Orange has built sponsorship of the arts into its brand image. Currently sponsoring literature, film and contemporary music, Orange has managed to incorporate culture into its marketing strategies. Initially the Orange Prize for Fiction (1995) and more recently the Orange Broadband Prize for Fiction, highlights literature. Whereas by creating a partnership with the British Academy of Films (1998), and supporting cinema goers through Orange Wednesdays (2004), the company further expands its brand profile. The addition of Orange RockCorps (2008) to this profile, is an intelligent marketing strategy which further binds the Orange brand to the arts in the form of contemporary music. However, Orange RockCorps goes further than this, in that it also encompasses social responsibility, thereby engaging a further demographic, who may have no particular interest in the arts (Orange, 2010b).

The RockCorps concept began in the United States in 2003, where the founders set up a deal with Boost Mobile, who paid for them to produce a concert featuring a variety of popular acts (Hobbs, 2009). The only way for consumers to obtain a ticket for this concert, was to earn it through volunteering for four hours at a RockCorps Project. In 2008 RockCorps was launched in Britain, partnering with Orange, Sony Ericsson and Channel 4. The synergy of mobile network Orange with handset manufacturer Sony Ericsson is mutually beneficial, especially with the media partner, Channel 4, providing publicity in the form of television airtime. Despite the finances for Orange RockCorps being allocated from the marketing budget, because of the charitable element to the program, with various community projects being helped by the volunteers, Orange has also benefited from the fact that RockCorps effectively serves as a form of CSR. The partnership with RockCorps further enhances the image of Orange as a brand with innovative marketing strategies.

By combining the sponsorship of Orange with Sony Ericsson and Channel 4, and by using high-profile venues such as the Royal Albert Hall, brand exposure for the sponsors is maximized. The volunteer experience is designed to be as pleasant and entertaining as possible, whilst getting a large amount of work done, creating a visual transformation of a site. During the project, there are opportunities to engage with the brand partners, through the use of electronic media including peer produced photographs of the volunteer experience, and engagement with social networks including

MySpace and Facebook. The RockCorps product involves the physical transformation of dilapidated areas by young volunteers, which translates easily onto television, with presenters and celebrities able to join in with the work and perform at the projects.

In summary, the RockCorps concept combines social responsibility with musical kudos, a combination which has the company has proven is attractive to young people. Partnership with Orange, Sony Ericsson and Channel 4 enabled RockCorps to reach a wide audience, with a total of 13,000 tickets distributed in 2008 and 2009, and a television audience of more than 1.5 million people.[87] The synergy of several different companies, joining forces to form a single marketing product, is a creative use of experiential design, which benefits all of the stakeholders.

Orange is not the only mobile phone network marketing its product through association with contemporary music. O2 has chosen to sponsor The O2 in Greenwich, London (originally the Millennium Dome), which combines exhibition space with an arena for concerts or sporting events, and a large shopping and dining area, as well as several other music venues known as the O2 Academies. By linking their brand to popular entertainment, and by offering its customers discounts on tickets for events at their venues, O2 hope that customers will associate the brand with these experiences. With little to choose between in terms of service and available handsets, UK mobile phone networks must compete on the basis of their brand appeal.

Orange's sponsorship strategy has been more successful than other mobile phone companies trying to integrate multimedia services into their brand. Their brand placement encompasses a wide range of cultural interests, appealing to various demographics, which is reflected in the content available to download through their websites. O2's music venue sponsorship and ticket deals are also interesting from a design integration perspective. With music and video content available to download, and the ability to buy concert tickets to live venues through the same portal, the link between O2 and music would appear to be strengthening. Sponsorship can be a powerful marketing tool for mobile phone companies. It would appear to be important to integrate brand

[87] 45,000 volunteers have taken part in RockCorps projects and attended one of their concerts in Europe and the United States.

image created through sponsorship with products and services offered, in order to promote a consistent message. Vodafone and T-Mobile also have contemporary music as part of their sponsorship portfolio, both following Orange's lead by sponsoring a television program, and Virgin Mobile offers exclusive concert tickets to its customers, which is similar to Orange's "gigsandtours" offer. This leaves little room for brand differentiation, but reflects an intense competition for the youth market. It would appear that the most successful networks will integrate the cultural and physical products it offers seamlessly into its portfolio. Currently, however, due to the ease of using pay-as-you-go, it is possible to take advantage of all of the different offers by simply buying a SIM card for each network and putting it into a handset whenever required.

**Culture of customisation**

Customisation of mobile phone handsets is popular in Britain and Japan. However, many Japanese young people customise both the interface and the outside of the phone, providing an interesting case study of a social phenomenon. The majority of young people in Japan have few outlets for creativity and individuality in their day to day lives, as discussed in the group culture section in Chapter 2. Children are educated in the importance of group culture, being taught to imitate teachers and older pupils and to learn by repetition. From the age of 12, Japanese children attend junior high followed by high school, most of which enforce strict uniforms and codes of behaviour. The only aspect that young people are expected to stand out from their peers is in exam results. It is therefore understandable that they look for some outlet through which they can express themselves. Customization of clothing and accessories, including mobile phones, is one area where young Japanese are able to assert their creativity. From the author's observations, it would seem that teenagers rebel against their schools by dying their hair, accessorizing their uniforms, and by using brightly colored stationary. Parker, Hermans and Schaefer (2004) found that Japanese teenagers are as fashion conscious as those in America, but they differ in their attitude towards comfort. Where most American teenagers will own a number of fashionable outfits, they will generally choose comfort over fashion in an everyday situation. Japanese teenagers are far more likely to select an outfit that is uncomfortable but stylish in order to show affiliation to a particular group (R. S. Parker et al., 2004). Since the mobile phone is carried everywhere, its

customisation provides an easy way for Japanese young people to show their group affiliation and creativity. Companies such as Sanrio[88] and Disney, were quick to catch onto the mobile phone as a potential new market for products and services. Straps, stickers and screen protectors specifically designed for mobile phones have all been around since it became a mass market product in the late 1990s. Cute accessories, particularly those with a popular character or brand, appeal to both sexes and all age groups in Japan, although it is teenage girls who are particularly keen on the customization trend, with many spending hours decorating their phone. Anthropomorphic characters are particularly popular in Japan due to the symbolism attached to animals in Buddhism (Hjorth, 2004), and by extending this theory, it is possible to extrapolate that due to the symbolism attached to all things in Shintoism Japanese characters can often be trains, rocks or foods (see Illustration 15. on following page).

The author found that phone straps and print club stickers[89] are a common gift between friends, because they are cheap, fun and available everywhere.[90] Sanrio has even found a merchandising niche by creating a phone strap with a different “Hello Kitty” for every city, prefecture and major tourist attraction in Japan. Commonly found in stations and gift shops, these straps and trinkets serve as cheap presents for friends and family, and for the recipient, a collection of straps and trinkets displayed on a mobile phone provides evidence and reassurance of popularity and of belonging to a group.

British consumers are also keen consumers of customization products. Perhaps the most vivid example of the British enthusiasm for customization is the popularity of DIY and interior design, with shops such as B&Q, and televisions shows including Changing Rooms and DIY SOS (BBC,

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[88] Sanrio created the Hello Kitty, My Melody and several other cute character brands that remain popular throughout the world.

[89] Print club or purikura stickers are stickers made from photographs taken in special booths, usually with one or more friends. The background and style can be customised, and decorations added to the photographs before they are printed. These are exchanged between friends as souvenirs. A large collection of print club stickers is another sign of friendship and group membership among Japanese children and teenagers.

[90] Exchanging gifts between friends is an important bonding ritual for Japanese children.

A picture of a set of San-X characters called Wanroom, a merging of *wanchan* (meaning puppy) and *wanruumu manshon* (meaning studio apartment). These characters are furniture that has been made into an anthropomorphic animals, in this case dogs. According to the website, these characters are aimed at ages 13 and over, (http://www.san-x.co.jp/newcha/new170.html) whereas some of the characters are aimed more at younger children. Curiously, the *Kogepan* (burned bread) set of characters is aimed at either elementary school pupils or adults but not intended for the 13-18 years age group (http://www.san-x.co.jp/newcha/new183.html).

http://www.san-x.co.jp/wanroom/wanroom_mate.html accessed 05/05/2009

**Illustration 15.**

2006, n.d.). However there is little evidence to suggest that British people spend significant amounts of time customising their clothing, mobile phones or other consumables. Body modifications such as tattoos and piercing have become increasingly popular among British young people, where they are no longer associated with military service or prisons and have become a significant celebrity trend (Hill, 2008). In Japan, tattoos remain a sign of Yakuza membership, and have therefore not become a widespread fashion accessory aping celebrity culture as they have in the West (Delaney, 2004, pp. 243-245). Britain is a less group orientated society than Japan, so individuality is not suppressed to the same extent during socialisation. Throughout its history, the

UK has been subject to multiple waves of immigration and, as such, has a far less homogenous population than Japan. Due to the relative level of freedom enjoyed by British teenagers in comparison with their Japanese peers, they are able to express themselves in a wider variety of ways, meaning that customization of the exterior of mobile phones has not become popular. Young people in Britain customize their handset by changing ringtones, downloading screensavers and by adding games to their phones. Kits for changing the outside appearance of the handset are not widely available. However, the widespread availability of covers and pouches that protect the phone, makes phones customizable without causing any permanent damage (Amazon, 2010).

Mobile phone manufacturers in both countries have responded to the desire for customisation by providing consumers with changeable ringtones, screensavers, backgrounds and icons, but since the introduction of camera phones consumers are able to use their own photograph to customise the screen. As screen size has expanded, consumers had become accustomed to some standard physical mobile phone interfaces (candy bar, flip or slide phones with similar key layouts or touch-screens with a grid-like home screen), indicating that differences between individual models have eroded. It is, however, increasingly possible to customise the interface of the phone, making for a more personalised user experience. In the UK especially, as touch-screen devices have gained in popularity, the design focus has shifted away from the physical product and towards the user interface.

**Summary**

The mobile phone has spawned a number of social phenomena, some of which have become serious issues for society or for the police, but most of which are harmless. The ability to send and receive text messages quickly and easily, and by implication the LCD screen, is probably the single most important design feature in terms of social change. The addition of a screen, originally allowed users to store and retrieve numbers, but it quickly became the main focal point of the user interface, enabling the handset to be used for a multitude of applications. Screen related technologies have improved the flexibility of various consumer electronic products, but in particular

the mobile phone. The overall effect of mobile phone technologies is positive, enabling people to easily communicate as they travel. The average distances travelled each day have gradually increased since the introduction of mass transit systems. Despite the prediction that innovations such as home working and video conferencing would decrease the need for physical presence. However, the internet and mobile phone have done little to reduce the environmental or time burden of travel, although they have enabled the traveller to stay in touch whilst on the move.

The psychological benefits of owning a mobile phone, which include access to friends and family at all times, add to the user's sense of security and well-being. However, constant potential access has the negative effect of causing anxiety if contact is not maintained as promised. In some Japanese handsets designed for older consumers, this problem has been solved by enabling the phone to send a message to family members when the handset is placed in the charger, giving them reassurance that their elderly relative is still moving around and is therefore healthy. There is a similar function available for anxious parents, which allows them to track the location of their children using GPS, and for child mobile phone owners to alert their parents of any danger. This brings up issues of trust between family members, but is otherwise a benign technology which helps to reassure both parents and children.

The speed with which the mobile phone has gone from being an executive toy or status symbol, to an object carried by the vast majority of the population on a daily basis is remarkable. No other product can claim such a steep trajectory to dominance or importance. Due to the rate at which technology advances have accelerated during the 20th century, consumers have learned to adapt to new products rapidly. Mapping their experiences with other devices onto each new device, users quickly become frustrated when they cannot work out how to use the product. In this instance, a device designed to be used intuitively is necessary to bridge the knowledge gap, so that the new device's interface will be understood quickly. Examples of how a well designed mobile phone can become socially significant include, the iPhone (Japan and UK, available since 2007), Nokia 3120 (UK, released in 1999) and the NEC N501i (Japan, also released in 1999) all of which have

acquired significant followings, due mainly to their combination of technical prowess, intuitive usability and aesthetic appeal (Agar, 2003, pp. 119-121). The following chapter examines two of these factors, looking at the balance between aesthetics and usability.

# Chapter 5: Design Considerations for British and Japanese Mobile Phones

This thesis has established that, because of their very different cultures, there are a number of a significant differences between Japanese and British mobile phones. These differences manifest themselves in the design of the physical handset, the user interface, and the services provided by the network operators and third party companies. It has become clear that, through close collaboration between networks, manufacturers and service providers, the Japanese system has been significantly more successful at facilitating users in the operation of the various functions on their phones. The preceding chapters have explained why the design of the mobile phone has been so successful in Japan. This chapter will analyse design strategies and explain how network operators and manufacturers have improved the usability of their products. It would appear that, despite the initial superiority of Japanese phones in terms of usability, the technical specifications of the handsets are no longer significantly better. The gap is in the interface and online services available to Japanese consumers that either could not be found in the UK or were difficult to access. This changed in 2007, with the release of WiFi compatible phones with full-sized web browsers, including the Nokia N95 and Apple's iPhone (Garnham, 2007; Guim, 2007). As increasing numbers of this type of handset become available, and networks improve to keep up with demand, the full-sized web browser is becoming the norm on high-end handsets sold in the UK. This along with the development of applications, or apps, offering one-touch access to popular websites, games and functions, have altered the mobile phone significantly.

In this chapter, the design implications of creating products for the Japanese and British markets will be considered. In terms of culture, the cross-fertilising nature of globalisation has had some converging influences upon these two countries. One interesting aspect of the mobile phone is its rapid evolution. Early in this process, Japanese manufacturers raced ahead, pushing the boundaries of technology and creating interesting looking products with innovative functions and features including cameras, videos and email. Manufacturers elsewhere lagged behind, adopting

handset technologies that originally appeared in Japan several years before at a seemingly relaxed pace. Since 2007, the gap between Japanese and non-Japanese manufacturers has visibly closed.[91] NTT Docomo's adoption of several non-Japanese models for its Winter 2008 portfolio indicated that Japan's long-closed handset market had begun to open up to foreign competition, with Korea's Samsung and LG blending well with local models, Canada's RIM (Blackberry), and American company Apple were also given a place in the product line up . An increase in foreign competition is likely to hasten the demise of some of Japan's smaller handset manufacturers, such as Casio or Kyocera.[92] With Softbank's release of the iPhone and Docomo's introduction of a significant range of foreign handsets, many of which do not have the same level of technological specifications as the most recent Japanese models, evidence is mounting that a plateau may have been reached in terms of consumer needs. In the case of mobile phones, the meaning of this technological limit, is that the product has reached a point whereby it can perform any task to a level which, to an average consumer, is indistinguishable from a specialised product. Any further advancements are merely incremental improvements that are no longer considered revolutionary.

**Consumers and Design**

Design is tied to consumption. One of its principal purposes is to create something to be consumed. Aside from fulfilling the most basic human needs of food, clothing and shelter, consumption is driven by people's desire to create a meaningful existence (Julier, 2000, pp. 49-51). Different goods and services that serve the same purpose, have different cultural meanings. In the case of the car, meaning will be conveyed from its manufacturer or brand, its colour, condition and setting. A BMW in a crime-ridden estate conveys an entirely different meaning from the same car parked outside an expensive restaurant. The theory of cultural capital is useful in explaining the relationship between consumption and design. According to Bordieu, there are different human strata including those with economic capital, or the bourgeoisie, those with cultural capital, the

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[91] Though it could also be said that this gap was artificially increased by profit squeezing networks outside Japan (see Chapter 3).

[92] These companies both manufacture a range of electronic products, so it is unlikely they would disappear altogether.

intelligentsia, and those with neither, the proletariat (Milner & Browitt, 2002, p. 89). Those with economic capital have long been able to purchase cultural capital, but mass production creates the illusion that anyone can consume culturally significant products. This has both positive and negative effects, whereby consumers are willing to take on debt in order to consume products that they feel convey the most appropriate cultural message to those around them. Design in this context is most relevant to branding, whereby a brand is created with a particular design mission. Burberry, a brand regarded as quintessentially British, is consumed by those who wish to buy into the wealthy countryside image of British culture (Goodrum, 2005, p. 18). However Burberry's trademark check pattern was recently and famously adopted by urban British youths branded as 'Chavs'. Burberry has fought back, by removing its checked baseball cap, a favorite item for Chav youths, and has toned down its use of checks in general, as well as prosecuting those who sell fake versions. This has prevented the decline of Burberry's image from spreading abroad, as has happened in Britain due to the Chav phenomenon (Bothwell, 2005). In Japan, Burberry remains a fashionable, sought-after brand.

The meaning of design changes when people begin to use products in an unanticipated way. In the context of mobile phones, an example of this would be the use of punctuation to symbolise facial expressions, a phenomena which has emerged in both Japan and the UK seemingly independently, and with somewhat ambiguous origins and inventors (Mohun, 2002). The use of pictures to represent words has now been included in mobile interface design. This acts as a form of shorthand, so that consumers can use fewer characters to write their text messages and emails. Characters are also used on the physical interface to denote shortcuts such as, email, internet or silent mode. In this context, increasing functionality requires a larger number of shortcuts, requiring consumers from different cultures to understand a greater number of symbols. Along with the added design complexity of increased functionality, it also creates a number of dilemmas involving potentially unacceptable uses.

‘Design noir’ is a concept developed by Anthony Dunne and Fiona Raby (2001). It describes the potential dilemmas products that can create, and how design affects this. The Sony Walkman changed the way people interacted with their environment, as mobile phones have altered our interactions with others. Unexpected uses of the mobile phone are described in Chapter 4, and include bullying, ‘happy slapping’ and sexual harassment (Dunne & Raby, 2001, pp. 7-46). As electronic products become ever more sophisticated, new dilemmas are likely to emerge to challenge perceptions on the uses and abuses of technology. Facebook, and other forms of online social networking have further altered our interpersonal relationships. Using Facebook, which automatically feeds any updates made to a profile between friends, allows users to find out what people they know are doing and thinking. Use of these services requires some degree of discretion on the part of the individual and their friends. Young people in particular use social networking sites to keep in touch with friends and acquaintances. Many will log in several times a day, in order to find out what their friends are doing and to update their thoughts or feelings. As mobile phones and social networking sites have become more sophisticated, users are increasingly able to update their status whilst on-the-go. With the introduction of sites such as Twitter, which is specifically designed to only allow users to send 140 character updates, close to the 160 character maximum for a single SMS message, consumers are encouraged to use their mobile phone to post updates on the web (Twitter, 2010). Increasing the mobility of social networking and blogging in this way, allows users to constantly update their followers, who may be friends, family, colleagues or fans, on where they are and what they are doing.

The internet has rendered information public property to a degree never seen before. Prior to the internet, the mass media outlets of journalism, television and radio were the most ubiquitous source of information, and much of this content is ideologically filtered to fit the political leanings of the media outlet. The internet, provided it does not have a political firewall as in China, allows users free access to a vast array of information sources, from numerous ideological stances, effectively democratising information access. As mobile phones and the internet draw together in the form of handsets with full browsers and WiFi, access to information becomes faster and

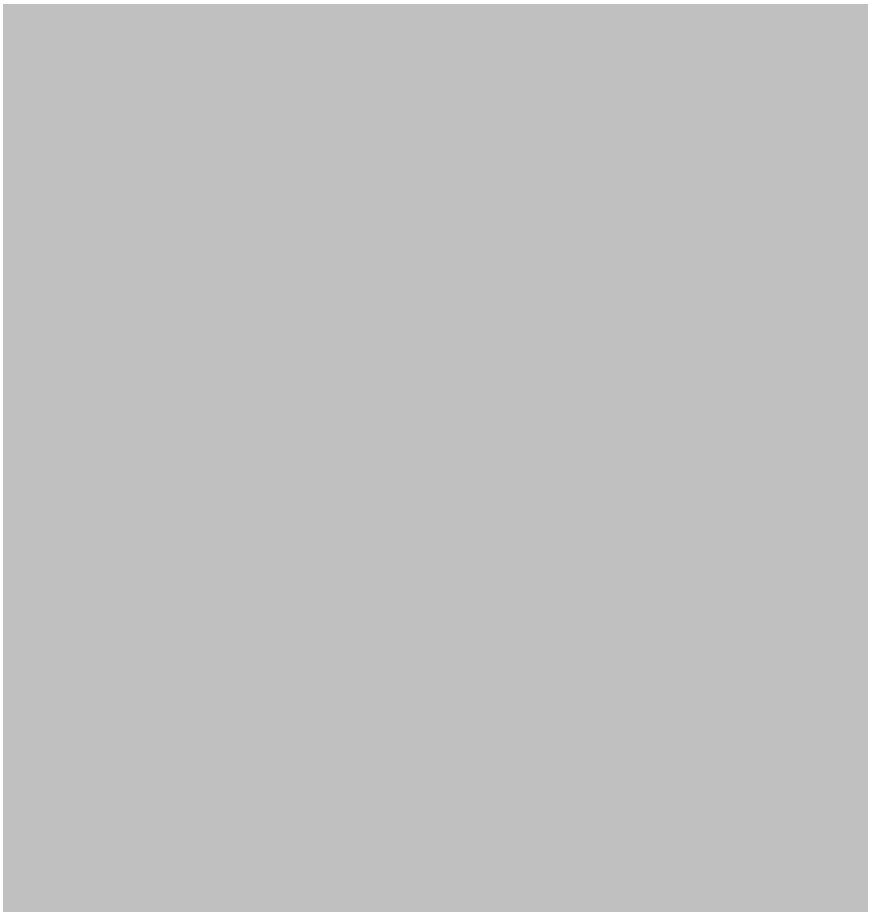

**Illustration 16.**
A computer screenshot from the social networking site Facebook. Friends can see what their other friends are doing, thinking and which events they are attending. Potential dilemmas introduced by this medium include, not being invited to a particular event or finding out about a misdemeanor. Users can only control the public content of their pages to a certain degree, they cannot control photos that may be posted or what is written on their profile page by others. Companies will often vet candidates by looking for them on a social networking site, to get an idea of their personal lives. Arguably, this is a misuse of the technology and an invasion of privacy, but if someone has allowed their profile to be viewed by members of the public, then they must accept that it can be viewed by anyone.

available at any time. Increasing access to information about products and services increases the likelihood that they will be consumed. This is the theory behind the phenomenon described in *The Economist's* 'Intelligent Life' magazine, whereby there has been an increased consumption of cultural products alongside an expansion in opportunities in higher education. Events such as the Hay on-Wye festival of literature and classical music concerts are increasingly well attended, mainly by educated people who consume a wide range of cultural products (J. Parker, 2008). This indicates that, as the level of education of a country, in terms of educational attainment, increases, the population will search out a wider range of experiences. Education increases knowledge and for most people, the size of their network. It is this, plus greater access to information via communication tools, including the internet and mobile phone, that encourages people to take part in social or cultural activities.

**Consumer Functionality Requirements**

Though it is both possible and likely that manufacturers will be able to increase functionality of features such as cameras and MP3 players, consumer requirements are likely to have limits. In terms of camera functionality, once it is possible to take pictures and videos at a high enough resolution that they can be transferred onto a computer screen without pixilation, then consumers are unlikely to demand much more. Likewise, increasing storage capabilities beyond a certain number of gigabytes is no longer advantageous as it becomes impossible for the user to entirely fill the memory, and increasingly difficult to locate a specific piece of data. In Japan, the limits of consumers' functionality requirements have already been reached, and are being approached rapidly in the UK. Proof for this can be found in the fact that Japanese mobile networks now use non-Japanese handsets in their range, which are not as advanced in terms of functionality as their Japanese equivalents. The table below explains the limitations of the mobile phone as a multimedia tool, in terms of what different consumers may want, or feel that they need, from their mobile phone.

**Table 9.**

| Function | Satisfactory | Desirable/Specialist |
|---|---|---|
| Camera/ Video | 2 megapixels is the industry standard in 2008 with high-end handsets featuring 5 megapixel versions. Standards have changed little by 2010. Videos shot using mobile phones are of a reasonably high quality at this level for a small screen, however but become appear pixelated on a larger screen. Very few consumers purchase phones based solely on the quality of video camera. Mobile phone handsets are not specialist photography equipment, and as long as details are easily discernible, there is no reason to purchase a camera phone with additional megapixels. | Phones with up to 12.1 megapixels were available in 2009, and are desired by those who wish to use their handsets for high quality photography. However, simply increasing the number of megapixels will not result in a better camera, as a high quality lens is required to capture photographs in this level of detail. According to experts such as New York Times technology writer David Pogue, there will be no detectable difference between pictures taken with a 2 megapixel camera and those taken with a 12 megapixel camera. This is especially true of camera phones. |
| Music Player | The ability to store 16 gigabytes of information, appears to be sufficient for the majority of consumers. This allows than to store a large quantity of music, videos and photographs. | The sound quality of a mobile phone is likely to be sub-optimal for specialists. Increased storage capacity is useful, but a superior interface, such as that of the iPhone is required to access data easily. |
| Games | Storage and processing are key to the functionality of games, however so are controls. On a conventional handset with a keypad, buttons are not configured for optimal game play. | The Nokia N-gage was designed specifically with mobile gamers in mind. It was not a significant success as those who enjoy gaming are likely to own specialist consoles. |

If the limits of conventional handset functionality are being reached, then the future of the phone will be in the services that it can provide. As network speed improves, consumers will begin streaming media directly through their phones rather than purchasing individual songs, videos or magazines, as is already happening on the conventional internet through websites such as YouTube, BBC iPlayer and Spotify. However, streaming is a frustrating experience for users if the media is constantly buffering, or if the screen is too small to see the picture properly. Maximisation of screen size is one of the reasons for the increase in touch-screen handsets on the market in the UK. This is often at the expense of usability.

The introduction of touch-screen technology has revolutionised handset design. Eliminating the majority of buttons decreases potential variations in form and therefore focuses attention on the user interface. Since it should be possible to update interfaces without changing hardware, it is likely that, once touch-screens become the norm, this will temporarily slow down sales of new hardware. One indication of this is the shift from 12 and 18 month contracts to 24 month contracts in the UK.[93] However, as Apple is proving, revenue can then be generated from selling software through its easily accessible App Store, which had distributed more than 2 billion Apps by the end of 2009 (Kerris, 2009). This shift, from a hardware, to a software, based design solution, is indicative that consumers are beginning to treat their phones in a similar way to their laptop computer. Though they perform many of the same functions, the mobile phone and the laptop computer start from different design considerations. Whereas most laptops need to be portable, they must primarily serve as a work and leisure tool enabling viewing and editing of documents, photos and websites. The mobile phone, on the other hand, originally served the primary function of voice communication, followed by the increasing dominance of text-based messaging during the late 1990s (see Chapter 3). Evidence for the convergence of the laptop and mobile phone can be found in the rise in the number of netbooks on the market, the increase in size of mobile phone

[93] This is particularly true for high-end handsets such as the iPhone. See any of the websites of the major mobile phone networks for evidence.

screens, and the overlap of functions. Products such as the Apple iPad (2010), the design of which sits somewhere between a laptop and mobile, have encouraged other manufacturers to produce consumer-orientated tablet computers. Convergence of product functionalities is occurring, but whether netbooks and tablet computers will replace mobile phones and laptops, or merely supplement them, remains to be seen. Manufacturers, already managing a gradual shift from hardware upgrades to software upgrades, will undoubtedly encourage supplementation, thereby selling a greater number of products.

Service design is also becoming increasingly important as mobile phone companies battle to attract and retain consumers. Designing services to fit the needs of consumers, is one way to address the potential problem of creating a product with a lot of unnecessary functions. Once the network is sufficient to stream data at an acceptable rate, the need to store information will be greatly reduced. Computing is already moving online with Microsoft Office Live (2008) and Google Docs (2006) enabling users to access and edit information from any web browser (Shelly, Vermaat, & Quasney, 2009, p. 173). Once consumers begin to move away from storing information on their computers and phones, user interfaces can become simpler. Mobile network operators are dealing with increasing quantities of data, which is likely to become their main source of revenue. In telecommunications, as touch-screens become the norm, the possibilities for designing a distinctive physical product will diminish. Consumer expectations are already shifting, such that distinctiveness is expected more in the interface and in the way the user interacts with their product, than in its outside appearance. This is because, in the late 2000s, touch-screen products are somewhat homogenous in their appearance, rectangular, with a large glass screen covering the majority of the front, and, with the exception of a camera lens, there is usually little on the back of the handset. It remains unclear as to which companies will dominate the mobile space in the future, but given the unpredictability of technological progress, and more importantly, the consumer reaction to these technologies, it is only possible to extrapolate developments based on the recent trend towards online media storage.

In his book *The Design of Everyday Things*, Donald Norman lays out the importance of usability to good design. Though this book was originally published in 1988, before the digital revolution, and therefore, does not address the specifics of designing a mobile phone or laptop computer, its lessons can be applied to these products. Balancing the number of functions with ease of use is the key to good design as defined by Norman. In the case of the mobile phone, as the number of functions has increased it has become harder to design a product that satisfies usability criteria such as finger-sized buttons with clearly labelled functions and an intuitive interface. According to Norman, this results in consumer dissatisfaction, but rather than blaming the product, users will often blame themselves for their inability to use it, concluding that they are technically inept. Norman's view is that it is the fault of the designer who has failed to create a product that can be easily understood and operated (2008, pp. 1-33). Inclusive products, designed to be used by as large a proportion of the population as possible, should not have to compromise on functionality. However, the difficulty with mobile phones is that the whole package must be well designed, including the hardware, interface and services provided by the operator. There are numerous examples of the failure of at least one of these areas, including WAP and Vodafone in Japan (as discussed in Chapter 3), leading to consumer disappointment and frustration, negatively affecting the brand image of that product or service.

**i-mode as a Key Product**

One service that stands out as an example of successful design is NTT Docomo's i-mode. Introduced in 1999. It quickly built a strong base of subscribers using a business model based on micro-payment, with low subscription fees tied to the use of a mobile e-mail service. The i-mode service proved immensely popular due to its marketing as a fun and useful additional service, rather than a mobile phone based internet. The small data charges initially attracted customers who valued the convenience of a mobile e-mail service, many of them having used SMS. The additional content, much of which could be accessed for free, was an added bonus.[94] In design terms, i-mode was easy to use, with specific buttons dedicated to both e-mail and internet access,

[94] Own observations collected from mobile users (2000-2004)

and a simple interface suitable for a small screen (Matsunaga, 2001). Other operators mimicked NTT Docomo's i-mode service, to a similar level of convenience and ease of use. The standard layout for the Japanese mobile became entrenched, with dedicated buttons for internet, e-mail and a directional dial or joystick with a central confirmation button, a fairly uniform pattern that has not changed significantly since e-mail and internet services were introduced.[95] The first phone to feature a similar layout, without the on-screen command buttons, in a flip-phone was the NEC 501i in 1999 (日本インダストリアルデザイナー協会, 2006, p. 131).

This model has since been adopted by mobile phone manufacturers worldwide. A similar key layout can now be found on phones from a number of manufacturers including, Samsung (Korea), Sony Ericsson (Japan/Sweden), Motorola (United States) and Nokia (Finland), and appears on a range of phone layouts, including the candy bar, slider phone and flip phone designs.

| Samsung SGH-i200 | Sony Ericsson K800i | Nokia N73 | Motorola RAZR V3 |
|---|---|---|---|

On the top section above the numbered keys notice the position of the select button, in the centre of either a directional joystick or circular key. All four of these phones also have the call key below left and end call below right of the select key. The layout is almost identical on every model, making it easier for the consumer to switch between brands.

**Table 10.**

I-mode has influenced mobile phone design throughout the world, largely because of its ease of use, and relatively few well-labeled buttons, with symbols that can be understood instantly. The e-mail symbol is typically an envelope, and the internet is an i for i-mode phones, but is often a globe on more generic models which are sold by more than one provider.[96]

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[95] See the Motorola keypad on the right of Table 10 on the next page

[96] This rarely occurs in Japan, but is common in Europe.

The integration of i-mode design, running through the physical product, the interface and the services provided are typically Japanese. A long history of inter-firm collaboration in the form of the *keiretsu* system (described in Chapter 2), and prior to that the conglomerates known as zaibatsu, that owned the whole product from conception to distribution, has led to a whole host of integrated deals or packages. Tours taken by Japanese tourists exemplify this high level of multi-company integration: once they meet their guide at their local airport, tourists do not have to think for themselves at all. They are herded onto a reserved area in the aircraft; then they are met by a coach at the destination airport and taken to major tourist attractions, where they have a short time to look at and take photographs of the scene, before being driven to the next destination or hotel. In order to achieve this there is a synergy between the tour operator, the coach company, the airline and the hotel, not to mention the numerous deals struck with companies running tourist destinations worldwide to ensure smooth and timely entry for the whole group.[97] Japanese consumers have come to expect a high level of quality in the service they receive as well as in the product that they buy. It is partly for this reason that Japanese government and industry spends huge sums on research and development relative to its population size (see Graph 8)(Durst, 2007).[98]

Another reason for the relative success of i-mode compared to mobile internet services in Europe, is the pursuit by Japanese companies of market share over profit (Lonien, 2003, p. 66). The fact that market share is regarded as more important than profit, is an indicator of the differences in the corporate governance structure of Japanese companies. British companies and those that follow the US model, are far more driven by quarterly profit, and shareholder value than firms in Japan, many of which remain family owned with heavy investment from banks (Charkham, 1994, p. 73). Japanese shareholders are often other companies, rather than individuals, as firms hold significant percentages of each others' shares in order to cement relationships and to prevent hostile

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[97] Author's own experience of working in the Japanese travel industry.

[98] The Japanese government spends 3.4% of its GDP on R&D, but this is only a small percentage of the total R&D expenditure, in a country where 77% of R&D expenditure comes from industry. This compares with an expenditure of less than 2% of GDP from the UK government, where only 40% of expenditure of total R&D expenditure comes from industry. When the contribution from industry is added in, this translates to around 10% of Japanese GDP expenditure compared to less than 4% in the UK.

**Graph 8.**

takeovers (Palmer & Clegg, 1996, pp. 168-169). This system however has been criticised for being anti-competitive (日米構造問題協議 US Japan Construction Forum, 1990), and for contributing to the stagnant economy throughout the 1990s and early part of the 21st Century (Anchordoguy, 2005, p. 9). In the case of NTT Docomo, the anti-competitiveness claims hold up to some extent. Deregulated in 1985, the Japanese telecommunications industry has remained dominated by NTT, due to its dominance over land line services throughout Japan (Brown, Hossain, & Nguyen, 2004, p. 176). NTTs grip on Japanese landlines gave it a huge advantage in terms of market share when it came to enter the mobile market. Infrastructure and relationships with electronics firms were already in place, meaning that latecomers such as KDDI and J-Phone had a lot of ground to make up. This is reflected in the fact that NTT Docomo have retained more than 50% of market share into 2009, dropping just below during 2010. However, it is not just well integrated products such as i-mode capable handsets that have helped to retain consumers. Aggressive pricing policies such as the Fami-Wari or family discount, and a variety of loyalty-based benefits, have kept NTT

Docomo's attrition rates low (NTT Docomo, 2010). In addition to this it should be noted, as discussed in Chapter 2, that loyalty is valued highly in Japan, which remains a relatively conservative society, and since many consumers have traditionally had an NTT land line, they are more likely to trust NTT Docomo to provide them with a reliable mobile service.

I-mode has proved a well timed, well researched and above all, well designed, addition to the strong NTT Docomo brand in the Japanese mobile phone market, where network brands are far more significant than manufacturers on handsets (Kikkawa, 2004, p. 72). Subsequent developments have also been similarly well thought out. The fact that many mobile phone manufacturers still mimic the original i-mode capable model for their basic design, indicates the power of NTT Docomo's influence upon global telecommunications. However, what many providers have failed to replicate is the micro-payment system used by i-mode. Micro payment has proved popular not only for mobile internet services such as i-mode, but is also highly successful in the mobile banking initiatives in the developing world, where consumers are extremely cost sensitive (Ivatury & Pickens, 2006). British consumers have also proven cost sensitive, especially when it comes to subscribing to unknown products such as mobile internet services, which, after the disappointing performance of WAP in the early 2000s, are not trusted (Haig, 2003, pp. 199-200). The mobile internet has been embraced in Japan through disruptive marketing and by designing a complete product that is useful, easy to use, and fun. The addition of internet services that allow consumers to download complex games, read the news and shop online, have necessitated a change in the design of handsets, enlarging the screen and requiring the addition of functional buttons. Since these changes occurred initially in Japan, and evidence of their influence can now be found on mobile handsets throughout the world. The physical appearance of contemporary mobile handsets, at least in terms of their basic layout, can be assumed to have originated in Japan. Meaning that Japanese mobile phone design has had a global impact, despite a conspicuous lack of Japanese brands available in Europe.

**iPhone: a branding phenomena**

There are multiple references to the iPhone throughout this chapter due to its impact and lasting dominance over the UK mobile phone market. The iPhone is significant due to its rapid ascent to dominance over the developed world's mobile phone markets, and the cult-like devotion Apple products inspire in many of their fans. Despite the iPhone being the first mobile phone handset made by Apple, the rumours surrounding its release, followed by the speed of sales of each new model, make it a remarkable product. No other handset has achieved this level of international popularity. From a design perspective, the iPhone is proof that one simple aesthetically pleasing object with an intuitive interface can be an extremely marketable consumer product. Although the iPhone is now in its third generation (iPhone, iPhone 3G and iPhone 3GS), the fundamental design of the product and the user interface have not changed. Contrast this with the huge number of new handset models that most other manufacturers bring out each year. It is clear that for many manufacturers, money and effort have been wasted on producing multiple designs of similarly performing products, when they could have been concentrating on designing a product that works for the largest section of consumers. Apple products are multi-lingual, and feature easy to use, simplified designs. The iPhone's design has been mimicked by many other manufacturers wishing to produce a touch-screen handset in order to capitalise on the success of Apple products. James Utterback would call this mimicking 'dominant design', whereby a single product becomes the definitive style of all subsequent models (Utterback, 1996, pp. 24-35). Despite becoming a dominant design, it is unlikely that the touch-screen phone will endure for many years. With the speed of technological advance, the products known variously as mobile phones, smart phones, or taking on generic names such as Blackberry or iPhone, may well be be significantly different within ten years, just as mobile phones have changed an enormous amount since they became a consumer product.

**Socioeconomic Impact**

Mobile phones have affected both the economy and society in numerous ways. Despite the speed of its penetration throughout the population, the various societal and economic effects of the

mobile phone remain difficult extract from those of the internet. This is partly because the internet and mobile phone, both essentially communications tools, were introduced to consumers at around the same time. Their histories are somewhat intertwined, and their futures are even more so. In the developing world however, the mobile phone has brought far greater benefits than the internet. The benefits brought by mobile phones can be seen throughout the developing world. By connecting people on low incomes, who previously had no access to telecommunications, mobile phones have empowered people by enabling them to obtain information they would not previously have had access to. The PC-based internet has greater barriers to access due to the expense of buying a computer, a means of powering it, and subscribing to an internet provider. Mobile phones, on the other hand, are low-powered devices that can be recharged using simple dynamos attached to bicycles or plugged into a basic solar panel, negating the need for mains electricity. Wired connections are too expensive for telecommunications companies to justify running cables to remote villages, especially considering that these villagers are likely to be low-volume users. Wireless networks allow remote areas to be connected cheaply to telecommunications networks, enabling the populations of these areas to access the global economy. This also has implications for access to education and technology, which will have a knock-on effect in terms of development, as greater numbers of people are able to access up-to-date information. The Village Pay Phone scheme in Bangladesh, where women who are signed up to the Grameen Bank micro-credit scheme, are leased a mobile phone, which can then be rented out to other villagers. This scheme, launched in 1997 (Grameenphone, 2006), benefits not only the women, who gain access to a means of earning, but also to the other villagers who gain access to a means of communication with friends and family in other parts of the world (Giovannetti, Kagami, & Tsuji, 2003, p. 41).

Benefits to developed societies such as Britain and Japan are more difficult to measure than they are for developing countries. The nature of developed societies is complex; people have more choices, so even within small communities lifestyles are diverse and varied. Mobile phones have unquestionably brought about changes to our behaviour and lifestyle, as discussed in Chapter 4, but can these changes be classified in as simplistic a manner as a good/bad dichotomy?

Classification along purely economic terms is more telling, the rise of mobile phones and the internet, has brought about opportunities and open channels to communicate these opportunities that have never previously existed. In the context of this thesis, it is important to separate the internet from the mobile phone, at least for most of the 1990s in Japan and into the 2000s in Britain. Convergence, as mentioned earlier in this chapter, is gradually bringing these technologies together to create a seamless communication channel, but at the time of writing (late 2000s) this is yet to be achieved. Due to increasing coverage and faster download speeds, British consumers are now using the internet on their mobile phones (Snol, 2009), but the speed of connection is considerably faster, and the range of pages available remains far greater on the computer based internet. Since the mobile phone and the internet are different mediums, it is easier to separate them in terms of design innovations. Outlined below are some of the social and economic areas that have been directly influenced by mobile phones.

**Design and Society**

Japanese society's rapid progress economically was not matched by the sort of social and cultural changes that occurred in many Western countries. Indicators of social change include; the position of women in society relative to men, acceptance of minority cultures and lifestyles and the content of the media. As discussed throughout this thesis, in comparison to Britain or the United States, Japan is a far more conservative country. The rights of women, minorities and other vulnerable people are not well protected, with discrimination endemic throughout society. As discussed in Chapter 4, this is an example of cultural lag, whereby technology facilitates social change, which occurs a few years behind technological progress. Societal conservatism sits to some extent in contrast to a culture that embraces changes to their cities and landscape, as outlined in Chapter 2, as old buildings are demolished and new ones erected in their place far more frequently than is the case in the UK. The products and services demanded by and acceptable to these two culture will be different as outlined below.

Design is specific to the culture and era in which it appears. Kitchen equipment provides vivid examples of differences in culinary and lifestyle cultures. For example, in the UK, a toaster's only purpose is to heat sliced bread as quickly as possible, whereas in Japan they are used for various other foods and are therefore designed to work more like small electric grills. Japanese households invariably have a rice cooker but no oven, whereas in Britain it is the other way around. Rice is eaten daily in Japan, sometimes up to three times a day, whereas ovens are seen as taking up too much space. As culture changes, different products become commonplace whilst others disappear. Typewriters and record players were once common household objects, but are no longer necessary for most people. Marketing is also culture specific, balancing legal requirements with social norms and consumer expectations. Acceptability changes over time. Tobacco, alcohol and junk food used to be advertised freely on British television, but this freedom has been gradually curtailed as the negative societal costs and health consequences of these products have been discovered. Health is also a major concern for Japanese people, but for political reasons smokers are yet to reach the pariah status they occupy in Britain. These national differences in social norms and values lead to many of the differences we see in product design, as discussed above. The image on the following page is an advertisement for a Japanese mobile phone which clearly illustrates this point.

This advertisement, produced by NTT Docomo, can be used to illustrate a difference in attitudes between British and Japanese consumers. An advertisement for a mobile phone with functions and features designed to appeal to women, it includes supposedly flattering colours, a cooking timer and a biorhythm calculator. The image and text invoked strong feelings of disgust among an indicative sample of twenty non-Japanese women between the ages of 18 and 32, questioned by the author.[99] It was felt to be repellent to British and other westernized women in the survey. The was that this form of advertising is outdated and would not appeal to women in the 21st century. The product is an obvious example of design for a particular demographic, in the competitive

[99] Opinions collected by email from group of acquaintances, mostly graduates, from Canada, Australia, Britain and The USA.

Japanese mobile phone market, it certainly stands out, but this will not necessarily convert to sales. Fertility is not openly discussed in either Japan or the UK (Meerabeau, 1999), so by being both the only handset with a biorhythm calendar, and looking so distinctive, it would alert others to the fact that you might be trying to get pregnant. This may be regarded as embarrassing by the target audience. Functions such as the biorhythm calendar on this phone would now be sold as downloadable applications rather than inbuilt functions, giving consumers the choice of adding this functionality without subscribing to the whole package.

**Illustration 17.**

http://www.nttdocomo.com/features/diverse_needs/index.html accessed 03/05/2007

This model was made by Mitsubishi and was available to buy on NTT Docomo's network. This advertisement, on the company's English language website, with a more comprehensive version available in Japanese, demonstrates a significant cultural difference between women in Japan and those in the UK. The author's investigation, found that the non-Japanese women surveyed did not

appreciate the tone of this advertisement, which was thought to be patronizing and anachronistic. This advertisement, clearly demonstrates a huge difference in culture between Japan and other highly developed societies. In terms of the expectations of British and Japanese women, the author's inquiries indicate that for a similar level of education,[100] Japanese women have far lower expectations for their future careers and lifestyles. Among Japanese undergraduates, the majority expected to be married within 2-3 years of graduation at which point, most intended to stop work, and to concentrate on raising a family. In Britain, this was virtually unheard of, with the majority of female students intending to concentrate on building a career, and marrying around the age of 30. Among British students, giving up work seems to be a possibility only in the event of childbirth, with the intension of returning to the workplace within 1 or 2 years.[101] The main reason for differences in attitudes between Japan and Britain, is the subordination of women in Japanese society, as outlined in Chapter 2. Though ostensibly afforded the same rights as men, Japanese women are restricted by a society that expects them to marry and then rear children, while men take on the role of providers for their families (Hendry, 2003, pp. 181-182). The strong reactions towards this advertisement highlights the value of analysing marketing materials in order to better understand social norms and values of a society.

The design of this mobile phone, combined with its marketing materials, offers an insight into Japanese society. Further examples, including models for children and older consumers (see Chapter 3 for details), provide further clues as to the type of society for which these products are designed. The validity if this evidence is increased by the prominence of the company that sells these products. As discussed throughout this thesis, NTT Docomo retains a huge market share in Japan, and is a trusted brand known by everyone in Japan. The handsets are manufactured and commissioned, if not always designed in-house, by Japanese companies with a long history and a strong reputation including Mitsubishi, Panasonic, Sharp and NEC, in collaboration with the mobile phone networks. This combination of brand strength and knowledge of the local market is a huge

[100] Based on the author's experience of living, studying and working in Japan (3 years) and the UK (native), through extensive discussion with friends and acquaintances.

[101] Evidence based on discussions with female students in Japan and the UK between 2000 and 2004.

advantage to Japanese companies, and strengthens the case in favour of product analysis as a method of gaining cultural understanding. Put another way, the specialist handsets available in Japan, would not sell in the UK, because British society has different concerns and functions differently to Japanese society, as outlined in Chapter 2. It is therefore interesting to note that, although there are very few Japanese mobile phone handsets available in the UK, the numbers of foreign handsets (of the sort that are sold in Britain, Europe and the United States) available in Japan has increased dramatically in recent years. This is evidence of more than just an improvement in the technical performance and design of foreign handsets, but also of gradual social change in Japan.

**Colour Choice and Culture**

Colour preference is culturally bound, evidence for this can be found by simply spending a day walking around a foreign city. It is likely that the colour preferences of the population will become obvious from the colours used in advertising and those worn by local people. Historically, colour preferences for are likely to be the result of a primeval instinct to protect. In the case of naturally occurring colours such as puce green and brown, which have come to be associated with death and disease, as they are associated with decay. These colours are universally reviled and generally avoided. Whereas colours not found in fauna such as blue are thought to be safe (BBC Science, n.d.). Other associations, based on religion, politics or gender are more cultural determined, but some, such as the use of red to signify communism, the combination of yellow and black to warn of danger, or the more recent adoption of green as the colour of the environmental movement, have become global phenomena.

In Japan, the relative homogeneity of the population, means that the cultural significance of colour is likely to be stronger than in more diverse cultures. Soma and Saito's research on colour preferences in three Asian cities, found that in Japan, black provokes mixed feelings, on the one hand, the Japanese are drawn to its clean, tight, sharp look, on the other hand, it is associated with death, darkness and heaviness. Throughout Asia, white has a long history of being associated with

the religious significance of the sun, it therefore provokes positive feelings in Japanese consumers, with around 25% of respondents placing white in their top three favorite colours. Blue-green and silver were popular in Tokyo. Bright blue and green, violet and light blue are universally popular colours in the three cities surveyed. Universally unpopular colours include; olive, dark grey, gold and yellowish brown (Leaman, 1996, pp. 97-98; Soma & Saito, 1997). In the discussion in another paper by Saito, she concludes that the significance of white in Japanese culture, being representative of the sun and used in various religious setting to signify purity and light, means that it has strong positive associations (Saito, 1996). Japanese mobile phones are usually available in black, silver or white, and often light pink though this range has expanded in recent years, see chart below. Black phones are usually owned by men, pink by women and silver by either sex.

Saito and Soma's research is not exhaustive by any means, however it does indicate some differences between cultural colour preferences. Cultural colour preferences specific to Japan and Britain do not appear to have been extensively researched, but given sufficient resources, would certainly warrant further investigation. Similar to Japan, there is a tendency towards manufacturing handsets in black, white or pink, for the British market, with black handsets outnumbering any other colour. The reason for the narrow range of colours offered to British mobile phone consumers is likely to be due to the generic nature of their design. It costs manufacturers less to manufacture a limited colour range, and with the wide range of countries and cultures in Europe, it is likely that the limited colour range available outside Japan is simply more cost effective than the potential benefits of offering more variety.

**Summary**

As discussed throughout this thesis, mobile phone design is highly complex. Considerations must include cost, available technologies, colour and usability, combined with other factors such as the end user and how a particular model fits into the current spectrum of available products. Often one or more of these factors is not taken into account and the product either fails to sell, or disappoints

consumers. Although design is society specific, given the prevalence of European and American cultural hegemony throughout the world, it is unsurprising that the mobile phone does not require much adaptation when sold in developing markets. Services however, tend to be much more specific to the cultural requirements of the country where they are operating. There are, of course, a few examples of unsuitable hardware being introduced from other countries. This list would doubtless be headed by Vodafone's Japanese operation, where the assumption that handsets sold in other countries would be acceptable to Japanese consumers accustomed to more high-tech products, proved fatal to the global operator (details can be found in Chapter 3).

Colour remains a consideration, but it would appear that black and white will remain dominant colours as they tend to be for all kinds of consumer electrical goods. This is unlikely to change, especially given the speed of uptake of touch-screen phones in the UK, where the design of the physical product is beginning to matter less than that of the user interface. A slick, customisable touch-screen interface with easy to use functions appears to be the primary aim of the mobile phone industry in the late 2000s, all of which are now competing with Apple's contribution to the handset market, the iPhone. This powerful late entrant, utilised a reputation for producing high-quality, attractively designed products with instinctive interfaces, to develop a handset with an instant cult-like following. The hype surrounding the iPhone, at time of writing remained largely positive, with hundreds queuing to purchase each new release of the handset (Judge, 2007). Britain's O2 network claims to have over one million iPhone customers, meaning that around one in every 60 people in the UK now owns an iPhone (O2, 2009). This is an extraordinary number of people to own a single type of handset, especially considering that there are around 90 different handset models available in the UK,[102] to say nothing of all of the older handset models no longer on the market but that are still perfectly functional. This seems excessive when considering that the working-age population of the UK is only 38 million people (Office for National Statistics, 2010). The dilemma facing other handset manufacturers is now, whether it will be possible for them to

[102] Based on own survey taken November 2009, information collected from all major mobile networks, cross-checked against the Carphone Warehouse.

manufacture a handset with comparable levels of design and usability for less money. On the basis of the evidence presented since November 2007, it seems unlikely that any single product will knock the Apple from its current position as the most desirable mobile manufacturer within the next couple of years. The iPhone is now used as the standard against which other handsets are measured. However, throughout this thesis, the evidence has shown mobile phone technologies to be a fickle market, with rapidly changing manufacturers and networks. It is therefore feasible, that an even more user friendly product than the iPhone with improved functionality will emerge and take over the handset market. However, with the increasing synergy between physical product and network services, designing and marketing this product will become an increasingly complex task.

# Chapter 6: Conclusions

As predicted at the beginning of this thesis, British and Japanese mobile phones are quite different products. However, probably the most unexpected finding of this research is the convergence of handset design between the two countries. At the time of commencing this research in late 2005, the author would never have imagined that the same handsets would be available in both Britain and Japan, and especially that handsets on the Japanese market would be made by non-Japanese companies. This thesis has charted the unprecedentedly rapid advance of the mobile phone from executive accessory of the affluent to ubiquitous everyday necessity, especially for some of the world's poorest people. This rapid global dissemination makes it a fascinating product to research. However, the speed at which the mobile phone has changed since its initial development means that research becomes outdated extremely quickly and must be constantly updated. Despite this difficulty, the three research questions laid out at the beginning of the thesis, have all been addressed and comprehensively examined.

In answer to the original research questions proposed at the beginning of this thesis the following commentary is provided:

**Research Question 1: What differentiates Japanese mobile phones from those consumed in other developed economies, and the UK in particular?**

This thesis has outlined the major differences between British and Japanese cultures. Many of these differences were identified in Chapter 3, where the mobile phone businesses of Japan and the UK were explained and analysed. As this thesis has highlighted, throughout the late nineties and early 2000s, Japanese mobile phones and their related services were regarded as being far ahead of anything that could be found in Britain, but the introduction of downloadable applications has changed this significantly. Table 11. contains a summary of the products, services and design features that have differentiated Japanese mobile phones from those in the UK.

| Japan | UK |
|---|---|
| Near field communication chips to pay for public transport and in shops (2004) | QWERTY keyboards on business models such as the Blackberry |
| Digital terrestrial television (2006) | Pay-as-you-go |
| Push email as standard (1999) | SMS and MMS. Push email available on Blackberry, iPhone and some other high-end models. |
| Character phone straps | A wide variety of phone shapes with touch screens gaining popularity in 2008 and 2009 |
| Personalised email styles and templates | Cultural preference for black handsets |
| Specific designs for older consumers and children | Sustained popularity of iPhone |
| Disaster warning and evacuation services | Text voting for TV shows such as Big Brother, X Factor and Strictly Come Dancing. |
| Flip phones | No overwhelming preference for any particular handset type, though increasing range of touch screen handsets available |
| QR codes prolific in advertising (2002) | Cultural, particularly music, sponsorship by mobile phone networks |
| **Table 11.** | |

The following aspects of mobile phone design and usage have also been found to be significantly different between Japan and the UK: 1. Payment

Pay-as-you-go is the most popular way to pay for mobile phone airtime in the UK. It is estimated that around 60% of mobile phone users do not have contracts (Sears, 2008). This system is convenient and cheap and benefits those without a bank account or much disposable income such as children and the poor. In Japan PAYG did not take off for a number of reasons, including the fact that there are relatively few foreign immigrants in Japan, and that Japanese children, as well as most young adults, do not expect financial independence from their parents. In Britain, PAYG remains popular among young people, visitors from abroad, and those who rarely use their phones. The popularity of PAYG, means that handsets stay on the market for longer than they do in Japan. PAYG customers are rarely willing to pay a huge premium in order to obtain the latest handsets, they will simply wait for a few months until prices begin to fall. The type of payment system used does not significantly change the design of the handset, but the services offered by

the network will be different. It is also more likely that the PAYG consumer will attempt to unlock the handset in order to use it with more than one SIM card or to change networks.

2. Secondary Handset Market

Certain features and functions are incorporated into the design of mobile phone handsets which reflect particular patterns of use within different cultures. For example, British mobile phone handsets are often passed around friends and families until they are lost or broken. This is a phenomenon that the author did not observe at all during her three years in Japan, but has observed on several occasions in the UK. The passing around of handsets, is made possible by the SIM card system which was not available in Japan before the introduction of 3G handsets and, even now, is not available to those wishing to switch between networks. Another phenomenon the author has observed in the UK is the selling of handsets via online auction sites such as eBay. In the case of individual sellers, as opposed to commercial operations, handsets are sold in order to take advantage of offers made by mobile phone networks, which generally offer free handset upgrades to customers when the original contract has finished, usually after 12 or 18 months. Many consumers do not feel they need a new handset as frequently as this but wish to take advantage of the offer, in order to profit from the online sale of the handset. With a secondary market in handsets, it makes sense for mobile phone networks to restrict users as much as possible, in order to lower the chances of a secondary sale of handsets. This conflict is partly resolved by phone locking, whereby the network a phone is able to connect to is restricted so that it will not function if another network's SIM is inserted. However, this lock can be easily removed using a code, which can be bought from the network at a premium or by consumers can taking their handset to one of numerous unofficial unlocking outfits. This locking system benefits the networks who subsidise the manufacturers making their phones available to consumers. Since manufacturers rarely sell their product directly to consumers, and must price themselves competitively in order to compete with other manufacturers, they must comply with the wishes of the networks. However, the control exerted by British networks is weak compared to the power of networks in Japan, as discussed in Chapter 3, where handsets are designed specifically for a particular network. This makes them easier to use, but less flexible and ultimately more expensive

for consumers wishing to change networks, or replace a lost handset.

3. Designs for Specific Demographics

When designing their product ranges mobile phone companies designing for the European market have not made any significant attempts to cater for the very young or the very old. To Japanese companies these are both markets with a great deal of potential. Handsets for older consumers in particular have proven popular enough to increase from a single model to a range. Following the success of the Rakuraku range (see Chapter 4) and similar products sold by other networks, mobile phone companies began producing handsets designed for children. Ethical questions regarding the use of mobile phones and services, such as the mobile internet, by young children have been addressed by the operators in the design of the phone, with the result that children are only able to access a certain range of pages deemed suitable for their age group. As well as designing protective features into the handset, companies have produced websites aimed at the youngest users of mobile phones. KDDI has a website designed for children which has games and quizzes designed to inform young users of everything from the history of communication to the dangers of using online dating sites (KDDI, n.d.-c). NTT Docomo offers a similar, but less sophisticated, site which has advice on safety and manners, as well as explaining some of the products offered by Docomo in a child-friendly way (NTT Docomo, n.d.-a). The information available on these sites appears to be designed to appeal to children between 9 and 12 years old. It is animated and interactive, and, in the case of KDDI's site, not exclusively about their own product range.

The websites of Japanese mobile phone networks are highly sophisticated, including a far wider variety of content than the websites of British operators which largely function as online shops and, in the case of Orange, as a news and information channel. Japanese people expect a high level of service from the companies they deal with, and mobile phone networks' websites reflect the complexity of the product (see Chapter 2).

**Research Question 2: How did these differences come about?**

Japan and Britain have much in common geographically as well as some historical parallels. Their island nation statuses and imperial pasts give these nations unique cultural characteristics, distinct from their continental neighbours. These similarities have little bearing on the uptake and use of technological products. As discussed in Chapter 2, Japan became a modern developed country long after Britain had begun developing its technologies. As such, during the early part of the twentieth century Japan was attempting to catch up with countries such as the United States and Britain. After the war, the national determination to become technologically advanced and acquire modern products, became ever more frantic. Added to its rapid development, Japan has a strongly embedded culture that has not been subject to significant waves of immigration. The origins of differences in mobile phone design between the UK and Japan can be summarised as follows:

1. International Migration

Due to the geographical proximity to Western Europe and ease of travel between its wealthy countries, British and other European consumers require a product that can be used flexibly across borders. This was negotiated early on, with the GSM standard being adopted by all European states. Given the fragmented nature of the European market, with its multitude of countries with small or medium sized populations, it is logical for manufacturers to sell a single range of handsets, in order to take advantage of economies of scale. As discussed in Chapter 2, due to its geographical isolation, the majority of Japanese consumers do not regularly travel outside Japan and therefore do not require a phone that functions abroad. Immigration into Japan is difficult, resulting in a lack of services to integrate non-Japanese; it is not an easy destination for migrants to either find work or integrate into society. The effect of this relative population homogeneity in terms of handset design is that designers only need consider Japanese consumers. This local outlook has resulted in the development of a near-field communication chip system, which can be used as a method of payment for convenience store goods and public transport, as well as the addition of terrestrial TV tuners to many handsets. Neither of these products has been developed

in the UK,[103] due to the fact that British phones are the same as those sold in Europe. It is likely that access to either of these services would cause problems with licensing and fraud, as well as requiring a great deal of infrastructural change in order to introduce near-field payment.

2. Group Culture Versus Individualism

This culture, outlined in detail in Chapter 2, emphasises the group above the individual, and it is this ethos that leaves a legacy on consumption patterns in contemporary Japan. Japanese consumers place high value on premium brands, which they consider to have a long and illustrious history, hence the popularity of historic European brands such as Burberry and Louis Vuitton. In terms of mobile phone networks this means an affinity for trusted, long-established NTT Docomo, over relatively recent upstarts like AU and Softbank, and is also reflected in a preference for handsets by trusted electronics manufacturers Panasonic and Sharp over little known foreign brands such as Blackberry and Nokia. Group culture dictates that Japanese people in general do not wish to stand out from the crowd in their day-to-day lives. However, turning this on its head, they enjoy being able to express themselves in small ways that remain personal to them and those in their peer group. The contents of ones' pocket or bag is one place where conformity is not expected. The availability of multiple handset models in an array of colours is therefore unsurprising, as Japanese people set out to find a product that expresses some aspect of their personality. They may want the same or a similar model to a friend, but in another colour to subtly differentiate themselves.

An understanding of the differences in group culture in Japan and Britain, as outlined in Chapter 2, is necessary to understand the differences in the way that mobile phones are designed and used in the two cultures. For example, a common mobile phone package in Japan is the Family Discount (see Chapter 3), whereby entire families receive a substantial discount if they have their phone accounts connected to the same bank account. This ensures that all family members remain

[103] However, Virgin mobile were briefly selling Lobster brand handsets with TV tuners.

connected to the same network provider, but also requires a great deal of trust between family members. From the point of view of the account holder, they must trust their families not to run up huge bills, and from the point of view of the other users, they must trust the account holder to not scrutinise their bills. A similar discount scheme is less likely to be popular in Britain, where privacy and independence are more highly valued. This is despite the fact that increasing numbers of young British adults are continuing to live in the family home, a phenomenon known as ‘parasite singles’ in Japan (Travis, 2009). Japanese parents will often continue to bankroll their children’s lifestyles into their twenties or later (Takeda, 2005, p. 162). The Family Discount is a symptom of this tendency, encouraging parents to continue paying the mobile phone bills for all family members.

3. Language

Due to its its multitude of highly detailed characters, the Japanese writing system ensures that Japanese children learn to differentiate details very early on, and develop a delicate touch in their penmanship. Set against the simple 26 letter alphabet of the English language, which can be written understandably in a variety of ways, Japanese people are able to distinguish fine detail more easily than British people (Kess & Miyamoto, 1999). This attention to detail makes them highly demanding consumers, whereas British consumers will often accept imperfections as given.

Due to the intricate nature of the language, with its combination of pictographs and phonetic symbols, Japanese mobile phones have to be able to process more complex algorithms. From the earliest mobile phones, the challenge of language input and display forced Japanese manufacturers to find solutions to allow them to display complex text. This was not a problem for markets with more simple scripts and, by the time a higher screen resolution was required, non-Japanese manufacturers could simply purchase the necessary technologies from Japanese companies. The need to develop a more sophisticated processor, capable of handling the complicated writing system as well as a wealth of domestic electronics manufacturers, pushed

Japanese mobile phones ahead of those in other countries at an early stage. This also helped designers to create a more user friendly product, with a more versatile screen, and therefore, also a more sophisticated user interface. However, the advantage conveyed by these factors has now ebbed away, and it is the brands that have a global presence, including Blackberry, Samsung and, since 2007, Apple who have the most power in the market due to the amount of money they are able to spend on research and development (Cellular News, 2009). This is reflected in the fact that RIM, Apple and Samsung have an increasing presence in the Japanese handset market, having overcome the barriers to entry, including a tight-knit mobile phone market and the complexity of the Japanese language.

**Research Question 3: What is significant about these differences from a design perspective?**

Evidence for two different approaches to handset design, interchangeability versus task specific design, can be found throughout this thesis. Japanese design could be said to be an extreme example of a task-specific, user-centred design process. Whereas, British design, or more specifically, products designed for the British consumer, tend to be more flexible but less user-friendly. These approaches fit their respective cultures for the following reasons:

1. Japan's historical ties between government and business, as outlined in Chapter 2, meant that NTT Docomo had a huge advantage over new entrants when mobile phones first became an affordable consumer product in the early 1990s. The system adopted by Japan was different from all other countries, as outlined in Chapter 3, with the result that that handsets could not be bought or used abroad. This allowed NTT Docomo to control Japanese handset manufacturers, setting a precedent for other networks to do the same once they had established themselves. This allowed Japanese networks to specify handset design to a greater extent than Western networks. This differs from the British approach whereby European networks came together to agree a transnational standard, enabling handset manufacturers to design generic models, which could be

sold across the European market with very little adaptation. Creating generic handsets allows manufacturers to take advantage of economies of scale, whilst allowing consumers to use their phones in multiple countries. Therefore handsets sold in European countries are designed to appeal to a generic European consumer, who encompasses a huge range of ethnicities and cultural backgrounds. Referring back to the charts on page 141, this would imply that, although the range of handsets offered in the UK is smaller than Japan's, there is a greater variety in phone type, with touch screen, slide and candy bar styles available in roughly equal proportions. Differences between the range of colours available appears to be negligible except for the fact that, on average, a 2009 Japanese handset will be available in 4.1 colours, whereas a British handset will only be available in 1.5 colours.[104] This means that for any given handset model, it is likely that a British consumer will have to accept whatever colour it is offered in, which is often black. Though this does not seem to be a significant problem for the majority of consumers, the sheer range of colours and styles available to Japanese consumers is significant, in that it indicates a greater cultural desire for individualisation in their mobile phone preferences. The author's own experiences in Japan suggests that further research in the area of cultural style and colour affinity is likely to indicate that Japanese consumers also opt for a wider choice of colours and styles in other areas of life, including clothing and food.

2. As discussed previously in this chapter, Japanese consumers have higher expectations than British consumers. They expect products to be flawless and intuitive, and for customer service to be attentive and individually tailored. These expectations make them less cost sensitive than British consumers (Lee & Trim, 2008), who expect products to work but are happy for them to be adequate, whereas a Japanese consumer would more likely demand perfection. British consumers have relatively low customer service expectations, and are more concerned about value for money than their equivalents in Japan. British consumers will therefore tend to buy products that look and feel good, even if their full functionality is not easily accessible. The research in this thesis indicates that, because their expectations are lower, most British consumers will not return a

[104] See chart on page 141

product they are unable to use, but will often revert to an earlier product, or struggle on regardless.[105] The tendency of consumers to blame themselves if they are unable to use a product is outlined by Donald Norman (2008, p. 42) in *The Design of Everyday Things*, where he calls the phenomenon 'Learned Helplessness'. It is likely that the British consumer is more likely to succumb to this than Japanese consumers, who are more inclined to ask questions and seek advice on how to use their product.

3. Loyalty has a higher cultural value in Japan than in Britain. Brand loyalty, is important to Japanese people, and is an important factor in the choice of mobile phone, where consistency in brand tends to mean consistency in user interface, as outlined in Chapter 3. British consumers tend to switch handset brand and network in order to secure the best deal. Japanese consumers tend to prefer the flip style handsets as not only does it convey the advantages of durability, large interfaces and screen, they also look and feel to Japanese consumers like a mobile phone, as this is what the majority of consumers have become accustomed to, and many remain loyal to this shape. Due to the array of styles of handset offered to British consumers, no one shape has prevailed, therefore any of the products available could represent a mobile phone as long as it performs the expected functions. This adaptability is also indicative of a less conservative society, in terms of the political and social issues as discussed in Chapter 4. British people have come to expect greater variety as they are subject to a wider range of influences than those in Japan. Brand loyalty, combined with conservatism, is the reason that it remains difficult for non-Japanese companies to break into the Japanese mobile phone market. The one exception to this being Apple's iPhone, which has a number of loyal followers due to its predominance in the computer and music player industries.

**Summary**

Handsets and consequently interfaces and networks which have been designed specifically for

[105] Based on indicative evidence from interviews with mobile phone users for the results of survey on usability

their tasks, are easier for the consumer to use. However, in Britain and Europe, it has proved advantageous to have an open system designed for frequent cross-border travel. This suits contemporary British culture, with Europe quickly and cheaply accessible by air, train and sea, it is preferable for many, to sacrifice some usability in order to increase mobility.

The design of mobile phones necessitates compromise, balancing screen size and resolution, number and placement of buttons, and high style with convention. Other major considerations are cost, and time from concept to manufacture. These pressures are different when designing for the Japanese and British markets. Networks have greater influence over design in Japan, whereas in the UK, because it is part of a larger European market, the pressure is to design a product that will sell a large number of units in a wide range of cultures with the added possibility of selling the same handset model not only to a large European market, but also to consumers throughout the world. Global manufacturers (RIM, Samsung, Apple, HTC) have built an enormous economic advantage over Japanese manufacturers who pulled out of the global market in 2003 (see Chapter 3). This difference in unit sales and mass appeal, has likely caused the convergence of British and Japanese mobile phone markets since 2007, as noted in Chapter 5. Given their previous reputation for developing ever more complex technologies, it is surprising that Japanese manufacturers have been slow to adopt touch screen handsets, comprising of only 7% of the available handsets at the end of 2009. In Britain they were embraced rapidly, as the popularity of the iPhone inspired all of the main manufacturers to release touch screen models, resulting in around one third of the available models being touch screen by the end of 2009.[106] The advantages of touch screen handset models include, a large screen size, flexible interface and a smooth look. However, returning to Japanese consumers' perfectionism, touch screens remain less reliable than physical interfaces, and can be slow due to their complexity. The Japanese preference for flip phones, 72% of all phones available in Japan at the end of 2009, is a trend that will be difficult to reverse. From a design perspective flip phones provide an optimal balance when considering contemporary mobile phone needs and available technologies. These handsets can

[106] See chart on page 141

accommodate a large screen size, large, easy-to-press buttons and a durable exterior. A lack of external buttons mean that it is difficult to make accidental phone calls, and the flexible hinges now available mean that screens can be opened in more than one way without significantly increasing the size or weight of the handset. Contrast this with 2009 touch-screen phones, many of which have slow interfaces and tend to pick up incorrect information, and it would appear that the long-standing Japanese preference for the familiar flip phone is well placed. However as touch-screen technology improves, and particularly as Apple and other foreign manufacturers make increasing inroads into the Japanese market, this could change.

# Glossary

2G - Second generation of mobile phones, capable of handling some data but with a lower bandwidth than 3G.

3G - Stands for third generation, and is a standard for mobile phone networks which can handle more data than either CDMAone (Japan) or GSM (Europe).

Baby Boomers - A larger than average generation born immediately after the war

*Bijutsu* - Translates as ‘art’

Biometric - Data obtained from physiological characteristics such as fingerprints

Bubble Economy - The period when the Japanese economy was valued and trading at prices far above its true value.

CDMA - Code Division Multiple Access, a standard used by Japanese mobile phone networks before 3G.

Chav - Derogatory term used for a working-class culture involving sportswear and ostentatious displays of branded clothing and accessories.

*Cho* - Area of a city comparable in size to towns in London such as Clerkenwell or Bethnal Green.

Communitarian Capitalism - Describes the system of corporate welfare found in large corporations in Japan. Coined by Marie Anchordoguy.

Cultural Lag - Describes the delay between the development of a technology, widespread use and social acceptance of its consequences, intentional or otherwise. Coined by William Ogburn

Cultural Materialism - Raymond Williams’ theory encompassing the conditions leading to the invention of a technology as well as the consequences of technological progress.

Cultural Meme - A unit of cultural inheritance

Curio - A rare or fascinating object. The word is a 19th century abbreviation of curiosity.

*DCMX* - Mobile credit system, Osaifu Keitai is an IC chip based payment system that is connected to DCMX

Deco-den - Decorated mobile phone handsets

Design Noir - Describes the unexpected uses of technologies, and how these often have a social effect. Coined by Anthony Dunne and Fiona Raby

Disruptive Technologies - Technologies that subvert the status-quo by providing cheap and previously unavailable solutions to problems, an example of this would be the Sony Walkman. Coined by Clayton Christensen

Emoticon - Small pictorial character that can be used in an email or SMS instead of text.

GDP - Gross Domestic Product

GPS - Global Positioning System

GSM - Global System for Mobile, the standard used in most European countries prior to 3G. Most UK handsets are able to pick up both 3G and GSM signals.

*Gurume* - Translates as ‘gourmet’ but is usually used to describe anything to do with restaurants.

*Heisei* - Peace and tranquility, one of the main aims of Japanese art.

*Hikikomori* - When someone shuts themselves away in their room for long periods, often extending to years, the phenomenon was first observed in Japan.

IC Chip - Chips used for near field communication, examples include, Felica, found in wallet phones and Oyster or Suica, used on the London and Tokyo transit systems respectively.

i-mode - Proprietary mobile internet system developed by NTT Docomo

JIDA - Japan Industrial Design Association

JIDPO - Japan Industrial Design Promotion Organisation

JUSE - Union of Japanese Scientists and Engineers

*Kaizen* - Translates as ‘continual improvement’, a fundamental aim of Japanese businesses

*Kanji* - The Chinese characters used to write many Japanese words

*Keiretsu* - Cross shareholding to prevent hostile take-over

*Keitai* - meaning portable, is the standard mobile phone system used across the globe that uses CDMAone or GSM wavelengths, as opposed to the PHS system.

*Kogei* - Transates as ‘craft’

*Ku* - An administrative area of a city comparable to London’s boroughs in size

LCD - Liquid Crystal Display

MEXT - Ministry of Education, Culture, Sports, Science and Technology

*Nabi* - Stands for ‘navigation’ and is often used for map-related software

*Nemawashi* - Making collective decisions by ensuring that all stakeholders are in agreement prior to an important meeting. Translates as ‘encircling the roots’.

NTT - Nippon Telegraph and Telephone, Japan’s originally nationalised telecommunications company

Onsen - Hot springs (often naturally heated) where many Japanese bathe as a recreational activity

Osaifu Keitai - Handsets containing an IC chip which can be used to purchase goods and services

PAYG - Pay as You Go, a system whereby a consumer can buy credit to top up their mobile phone

PDA - Personal Digital Assistant, the predecessor to the smart phone, stores calendars, documents, and other notes, but cannot be used to make or receive phone calls.

PHS - Personal Handyphone System, a low cost mobile phone system popular before *keitai*

Push Talk - is a low cost walkie talkie type system whereby consumers pay for the number of times they press the call button rather than the length of the call.

Rakuraku - Handsets designed specifically for older consumers

*Ringi* - A process of approval whereby all members of a company approve a plan from the bottom level upwards.

*Sakoku* - Non-participation in trade or cultural exchange with other countries. This could be used to describe the state of North Korea.

SCAP - Supreme Commander of Allied Powers

Securitisation - When an asset is of national interest and therefore protected by the government, often at great expense to either financially or to reputation.

*Shibui* - Beauty derived from simplicity and harmony with nature.

SMS - Short Messaging Service, usually referred to as text messaging in the UK

SQC - Statistical Quality Control, a method for breaking down manufacturing processes to ensure the product meets the design effectively.

Technological Determinism - The theory that technology drives society.

TQC - Total Quality Control, a method developed to ensure products met quality standards at each stage of production.

*Uchi-soto* - Philosophy whereby people are either part of the inner circle (*uchi*) or outside of it (*soto*) thereby inviting different treatment and language. This could be within a family, company or group of friends.

*Wabi-sabi* - Describes a style developed from the beauty created by the impermanence of nature.

WAP - Wireless Application Protocol, a non-proprietary code for producing mobile internet pages.

Waribiki - translates as ‘discount’

*Zaibatsu* - Large conglomerates with multiple industries e.g. Mitsubishi, Matsushita, Sumitomo

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