

## **A SMS HISTORY**

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### **Introduction**

This chapter examines how the seemingly unsophisticated messaging technology, SMS (i.e., short-messaging service), has found itself centre stage in contemporary social life. It examines how the position of SMS has been conflated, intertwining the social, economic and technological aspects of the capability, transforming the messaging service into something that is much more than merely a primitive means of composing, sending and receiving the alpha numerical messages known as ‘texts’.

Tracing certain elements of the SMS history since the early 1990s, the chapter explores how the combination of business and technological developments, like the shift to interoperability between networks and the capacity for a flat rate charging model for message delivery (rather than the previous paging model), precipitated a swell in the popularity of SMS. Factors such as these are seen alongside particular social developments (e.g. the early uptake of SMS among young people) and how they worked collectively to provide sufficient impetus for the widespread uptake of SMS. We also examine how technological constraints such as the 160-character limit on messages, the limitations of the alpha-numeric character set and the design of mobile devices were closely linked to the emergence of an SMS ‘shorthand’.

By unpacking these emergent properties – these transformations – we mean to lay bare the complicated interrelations that subsume technology-in-progress. The intention is to reveal that no simple path can be drawn to explain the developments in

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and uptake of technologies (e.g. Callon, & Rabeharisoa, 2003; de Laet, & Mol, 2000). Through the chosen examples, we mean to contest the commonly held assumption that technology can be viewed as removed and somehow separate from society – that a neatly carved division exists between things and people, nonhumans and humans (Latour, 1993). Instead, a picture emerges of SMS as yet one more *collective* that binds the worlds of non-humans and humans inextricably together. The chapter concludes with a discussion on how this examination of the SMS history has implications for reflecting on the next wave of developments in the broader mobile telephony project. Specifically, thought is given to the potential for picture messaging and what lessons might be learnt in order to better understand the progress and adoption of its specific feature set.

### **Talking ‘texts’**

On 3 March 2003, The Daily Telegraph, a national broadsheet newspaper in the UK, published a short article about a 13 year old girl who had written an essay in SMS shorthand.<sup>1</sup> The article describes how the girl used the abbreviations and “hieroglyphics” commonly associated with *texting* to compose an assignment she had been given at her State Secondary School in West Scotland. The article goes on to raise the looming spectre of falling standards in literacy amongst students in the UK and enlists a number of sources to examine this issue.

Rather than debate the moral panic that has ensued alongside the massive uptake of SMS amongst youth in the UK and Europe, the motivation behind this chapter is to examine just how SMS has become talked about and even derided for its role in shaping social relations, literacy, privacy, crime, and so on. Broadly, the aim is to examine how it is that a relatively simple messaging technology originally designed to be part of the maintenance layer of the GSM infrastructure has transformed into a messaging product and produced a new argot much discussed amongst the popular press, industry bodies and research institutions worldwide.

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To paint this picture, attention is limited to certain aspects of the SMS history. Attention is given to those elements that directly relate to the uptake of SMS as a technologically and economically viable solution, and that have contributed to the service's considerable demand amongst mobile phone users. Although a complete account of mobile telephony and its tightly coupled sibling SMS might be considered ideal, the aim has been to trace the relationship between particular events and bodies to illustrate the complex interplay that must take place to get something out of the engineering laboratories, onto the shelves and into the hands of willing consumers. Thus, the story is not an attempt at a rendition of all the facts, but rather it serves as a timely reminder that the distinctions drawn between technology, society and business are blurred. It also stands to illustrate how an examination of these merged relationships is necessary if we are to learn from the uptake and success of a technology such as SMS.

### **Technological developments**

The serendipity that would appear to have determined the present day texting phenomenon found its footing during the design of the GSM Technology.<sup>2</sup> In the process of the network design and development in the 1980s, it was recognised that it would be possible to send short data messages at the same time as speech using what is known as the 'signalling channel' or 'layer' of the network. This channel, used in digital fixed telecommunications networks to monitor and check on the network, was not needed in the same way for GSM and thus offered spare capacity for the delivery and receipt of non-voice and, specifically, alphanumeric text-based data.

It was the development of the unified GSM standard in Europe that provided the technological infrastructure to support the general availability of this form of data exchange. Indeed as Kasesniemi (2003, p. 94) asserts in her study of text messaging in Finnish society "only the spread of GSM technology enabled the birth of the text

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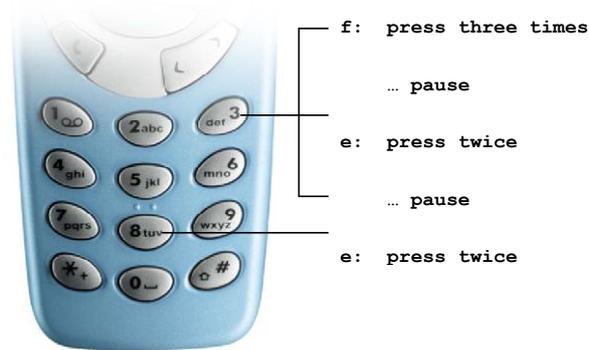
messaging culture, which could not have emerged without the technological innovation of the Short Message Service that was originally designed for an entirely different purpose.” GSM differs from previous analogue cellular radio technologies in that the “air interface”<sup>3</sup> is digital and the telecommunications standards that specify the service are largely non-proprietary. In other words, the basic services are the same regardless of manufacturer, thus enabling any GSM designed mobile phones to work on any GSM network. This was a major transformation for the mobile communications industry that had been offering national cellular systems using a variety of standards, sometimes with incompatible technologies competing in the same country. These services offered voice messaging and were sometimes sold as a package with radio paging services that provided a one way alphanumeric messaging service in areas where voice coverage was not available. The aim of the common GSM standard was to provide a pan-European infrastructure with the ability to use the same mobile phone in any location where GSM coverage was provided. This common GSM standard has been so successful that it has now been adopted worldwide with in excess of 1.2billion<sup>4</sup> GSM customers now using the service, most with the capability to use SMS as a standard feature.

Whilst the expansion of GSM internationally gathered pace, the progress with SMS appeared less certain. Indeed coupled with the design of mobile phones, the SMS protocol imposed some serious restrictions and raised glaring flaws in usability (although of course it should be remembered that the protocol was not originally designed to be used on a mobile phone, rather it was expected that a call centre would intercede, as explained later). For example, the bandwidth limitations of the signalling layer, alongside the constraints imposed by the common standard, set the now well-known limit of 160 characters per message (a limit that is reduced to 70 characters for messages written in the non-Latin alphabets, such as Greek or Chinese).

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Moreover, with almost all mobile phones being based on the standard 1 to 9, plus 0, keypad layout, the composition of messages was cumbersome and time consuming. On phones with these keypads, several characters are associated with each key, meaning that numerous key presses can sometimes be required to enter one character. To enter 'v', for example, the 8 key must be depressed three times. Furthermore, to write two characters from the same key consecutively requires a pause in the procedure. Figure 1, for example, shows the steps required to input "feet". First, the 3 key must be pressed three times to enter the 'f' character. A short pause is then necessary before the 3 key can be used to input the first 'e' (rather than change the already typed 'f' character). The pause allows the phone to recognise that a new character is to be inputted. A further pause is then needed before the 3 key can be pressed again to input the second 'e'. Finally, the 8 key is pressed once to input the 't'.



**Figure 1.** Steps required to input "feet".

As SMS increased in popularity, various solutions were developed to overcome these limitations. The ability to concatenate messages offered by some operators and available on specific phones provided a way for two or more messages to be strung together and read as one. Aiming to ease message composition, predictive text-entry systems<sup>5</sup> and phones with innovative form factors and a larger number of keys were also introduced. Leading manufacturers such as Nokia and Ericsson (now Sony

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Ericsson), for example, have produced a succession of devices designed to support single-tap character entry.

### **Texting' in the making**

With its limitations and the apparent primitive character of the technology, it was hardly surprising that the mobile phone operators and manufacturers had no strong business model for SMS. The emphasis for the launch of GSM was on the delivery of talk and international roaming; its unique selling points were the ability to use your own mobile phone anywhere in Europe and improved security and quality of service. The operators' vision for SMS was limited; its broad based appeal was initially as a unidirectional system for sending 'mobile terminated' messages to customers, such as voice mail notifications. Early SMS campaigns to promote the delivery as well as receipt of messages, rare as they were, almost exclusively targeted business users and positioned the service as a second-rate add-on to voice transmissions. Unlike WAP (that was to be the next wave of data services promising a direct line to internet content), the decidedly unsexy SMS was of little interest to an industry bent on promoting itself as exclusive and futuristic (Cooper, Green, & Moore, 2000). In this climate, the industry was caught largely off guard by the upsurge in SMS usage (particularly amongst young non-professionals). From the early days of SMS, several significant milestones appeared to have shaped the transformations in business strategies adopted by the industry players in their efforts to capitalise on the unanticipated windfall.

The commercial viability of SMS over GSM owes much to the earlier successes of the pager and related paging services. Although the underlying technologies behind paging and SMS differ significantly, it was the popularity of the paging services and, in particular, the charging models that first struck a chord with businesses in the mobile telephony sector. Having been handed the capacity for SMS, mobile telephony

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operators saw the potential to offer both voice and data services and, crucially, offer an integrated alternative to paging solutions.

The publicity surrounding SMS, prior to the launch of GSM in 1991, offers an indication of just how this view was presented by industry players. In Geneva, at Telecom 1990 (an event held every 4 years), marketing brochures from the organisation of GSM network operators, known as the GSM MOU<sup>6</sup> suggested that SMS was seen as a mirror image of paging.

*This [SMS] service allows the transmission of messages up to 160 alphanumeric characters to be sent to a subscriber. This can be seen as an advanced form of paging, but has a number of advantages. If the phone is switched off, or out of the area covered by GSM, the message is stored and offered to the subscriber when he reappears. This gives a much greater confidence that it has been received. Also, the user needs only one piece of equipment (the mobile phone), and the caller needs to know only one number (the mobile phone number) for telephony and paging. Some phones will even be equipped for originating these messages, but it is expected that generally telephony will be used to call an operator who types in the message at a Service Centre.<sup>7</sup>*

There are some clear similarities between the GSM MOU's description of the short message service, written in 1990 (well before the first SMS enabled phones had been launched), and the now ubiquitous texting phenomenon 15 years later. However, what now seems striking and somewhat peculiar is the idea that messages were not considered to be something people would compose themselves on their mobile phones. Taking a cue from the paging model, the organisation's brochure presents a model of messaging in which a service centre's operator would act as the primary vehicle for composing and delivering messages (even though it was recognised phones could be equipped to do so). The very idea that the 16 billion text messages that were sent in 2003 in the UK<sup>8</sup> could each have been called into an operator who typed it up and sent it on to each mobile phone seems preposterous but in 1990 it

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seemed an obvious solution: one that drew on the earlier success of paging and that overcame the need to manually enter text using the unwieldy multi-tap keypads. In short, SMS was seen as the cellular equivalent of paging services and the intervention of a human interlocutor a natural development.

Despite the general acknowledgement that messages could originate from mobile phones, as well as via human-operated service centres, mobile phone operators largely underplayed the concept. Predictably, success for the mobile phone operators was seen to hinge on the charging structures and phone-to-phone messaging was thought to be a loss leader in this respect (not least because of the higher infrastructure costs this involved). Whereas paging had been charged for by calls to the service centre, mobile phone operators struggled to determine how money could be made from the delivery of messages; to set up the billing arrangements and to record and charge for each short message sent was considered by some to be more costly than the revenue it would generate. Especially when considered alongside the economics of the paging industry.

It was only through the eventual delivery and uptake of SMS that this mindset and penchant for a paging-like service was displaced. Mobile phone operators soon realised that the setting up of service centres staffed with operators to handle the messages would be restrictively expensive: most mobile phone operators were already finding it difficult to keep up with demand and manage calls to their operators on general phone enquiries and they were unwilling to repeat this experience. In this light, a service that required no human intervention between the sender and receiver of the communication presented an attractive proposition. This provided the impetus for the reworking of SMS and at the vanguard of this shift – a move that turned out to be highly lucrative for the operators – was the enabling of a system to charge pre-pay customers for messages.

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Because SMS was thought unlikely to gain mass appeal, little initial effort had gone into establishing a model for charging those using pre-pay or 'pay-as-you-go' options; pre-pay packages from the network operators made no reference to SMS and, more importantly, no mechanism had been put in place to link pre-pay billing with the use of the short-text message service. With some operators, this loophole in infrastructural and charging schemes gave pre-pay users the opportunity to send messages for free. However, with customers and particularly younger users exploiting this gift-horse, the operators quickly moved to install the necessary technological and billing systems. Despite their relatively rapid response, this inadvertent oversight by some operators may well have contributed to the early up take of SMS and also had some bearing on its appeal amongst younger users, the largest consumers of pre-pay packages.

Alongside the move away from the paging model and the investment in an infrastructure to charge pre-pay customers, further factors played a significant contribution in broadening the appeal of the SMS service. Initially, messages could only be sent between compatible mobile phones on the same network. It was not until 1998 that the incumbent UK operators agreed 'interconnect' arrangements to allow for messages to be sent regardless of the network operator to which the phone was attached. It was possible to send messages between some international networks before the same compatibility was achieved between network operators in many of the countries offering GSM service.

This transition was smoothed and, indeed, made possible because both the infrastructure and the mobile phone manufacturers had had to comply with the GSM standards that required a common interface between devices and networked systems. Moreover, it was a commonly agreed upon system of charging for international *roaming* that made it possible to send and receive messages from any regions with GSM coverage, and from any GSM compliant device.

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### **The confluence of actors**

So far, this chapter has presented brief accounts of the SMS technology and the role the mobile industry's business interests played in setting the scene for the widespread adoption of texting. The development of the GSM standard and its acceptance first within Europe and then internationally was shown to lay the foundations for SMS. Specifically, the signalling channel freed up on mobile phone networks provided the spare capacity for the text-based messaging service. This technological potential was consolidated with a shift in the industry's operational model from one based on a paging-like arrangement to phone-to-phone flat rate charging and, crucially, the incorporation of pre-pay packages into the billing system. Industry-wide cooperation was shown to play a similarly important role. Both the 'interconnect' agreements between operators and the common standards designed to enable international roaming ensured that SMS did not languish as a marginalised, proprietary service.

These accounts reveal how a mixture of factors has each impinged on the emergence of SMS. There is paging – its past popularity, its billing and pricing schemes, etc.; the economics of messaging delivered over GSM for the mobile phone operators; the eventual delivery of SMS and its growing body of users; and the collective decisions and arrangements made by the major bodies and companies in mobile telephony. Of course there are a host of factors not mentioned thus far. For instance, there are the regulatory and policy arrangements acting to moderate and control the progress of GSM and its offspring, SMS, within and between the initial participating countries. There are also the tensions between standardisation and competition, forcing companies to define their own best interests and the best interests of the industry at large. This was exemplified in the UK where slow progress was made in formalising the interconnect agreement for the delivery of text messages between phones on different networks. Not to belabour the point, what is of particular interest here is that each of these factors, acting *en masse*, writ large and writ small, came to constitute an emerging heterogeneous collective – weaving together in different ways, negotiating

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their positions and ever so gradually transforming the capacity for the primitive exchange of digitally encoded texts into the short-text messaging service available today.

What has so far only alluded to is the role the consumer has played in this collective of heterogeneous actors. Central to the argument in this chapter is the thesis that the above developments were tightly interleaved with people's initial experiences with SMS and the service's subsequent and largely unexpected uptake. One of the first signs of this was the industry's response to the initial increase in use of text messaging once a 'point-to-point' delivery and receipt system between phones had been put in place. With the onset of the point-to-point system increasing data traffic by as much as 25%<sup>9</sup>, providers of the service realised that phone users were perfectly capable of composing and sending messages as well as receiving them, and were, if anything, drawn to a system that had no human interlocutor. The attraction to this point-to-point arrangement quelled the plans for the paging model that operators had first latched onto (although interestingly a remnant of this remains in the shape of the *Short Message Service Centre*, an electronic solution for managing and routing messages between phones and networks).

### **The SMS argot and new social practices**

The need to manually enter text also presented a somewhat unexpected twist to the adoption of SMS. Paradoxically, the limit of 160 characters, and the cumbersome and time consuming multi-tap method for entering text on phones struck a chord with users: particularly younger ones. Abbreviations, acronyms, and text-based emoticons (such as CUL8R, LOL and smiley faces, e.g., :-), ;-), etc.) adapted from internet messaging were brought to texting – largely by younger users – in order to ease message composition. To counter the limit on message length, texting specific conventions were also devised such as the scant use of spaces and the omission of subject pronouns like “I” or “he” (Hård af Segerstad, forthcoming). As well as

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bringing an informality to SMS communications, this hybrid of styles has established new linguistic repertoires that allow for the intimacy afforded in face-to-face encounters to be reproduced between physically remote interlocutors (Ling, 2003; Thurlow 2003).

A closely related side effect to the development of these linguistic practices has been the gradual introduction of a new and unique SMS argot (Vincent, 2004). The conventions that first appeared in order to resolve the technological constraints of text-entry became a means of demonstrating a competency in texting and one's inclusion in a valorised youth movement surrounding mobile phones (Green, 2003). Testament to the argot are the myriad books now available each explaining and instructing us on the particularities of the texting shorthand, and aptly titled "WAN2TLK", "Uwot", "TxtJox" and so on. Further evidence lies in the persistence of the shorthand, despite the introduction of predictive text-entry solutions and message concatenation. Teenagers have been particularly slow to give up their new vernacular (Kasesniemi, 2003) and – flouting the arguments for efficient interfaces – we have found, in our own field studies, occasions in which messages have first been composed using predictive text-entry and then reworked to incorporate the texting jargon, once the predictive system has been turned off.

Tightly coupled with the new argot, the point-to-point model not only acted as an initial driver in the SMS service's mass appeal, but also acted as a catalyst to strengthen its position still further. Having inadvertently convinced the operators and manufacturers to choose the point-to-point solution through their higher than expected usage rates, SMS users of various persuasions transformed the service into something that could offer more than just practical value.

Mirroring the peer-to-peer services available on the Internet, the point-to-point model came to provide a mobile solution for the asynchronous delivery of messages and,

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crucially, gave users the ability to store both sent and received messages on their own devices (in contrast to voice messages that are stored on operators' remote servers). On a practical level the asynchronous messaging service transformed the way people were able to organise such things as appointments. Arrangements could be left to the last minute or coordinated on a moment-by-moment basis to suit delays or changed plans (Ling & Yttri, 2001; Ito, forthcoming). The same principles were even applied to coordinate collective action (Rheingold, 2002), as in the case of the ousting of Philippine President Joseph Estradaor (Bociurkiw, 2001) or during the UK's fuel price protests in September 2000 (MacLeod, 2000).

Limited as it initially was, the storage facility on phones that was needed to support the point-to-point model was fundamental because it provided a basis for the transformation of messages from mere digitally encoded signals to saved mementos of important personal interchanges. The standard header information on SMS messages along with the address book's integration with caller-ID lent itself to this as it tagged each message with the date it was sent and the sender's name (if in the address book). Having labelled messages, carefully crafted in the texting argot, that could be stored on the phone, ensured that, for some at least, particular messages could be kept and treasured as the embodied residue of relationships or, equally, disposed of when relationships soured. The restrictions on storage capacity, particularly on earlier phones, served to enhance this sense of the importance of messages because it meant that only the most valued or cherished could warrant being kept. The mechanics of SMS allows messages to be personally and privately inscribed, delivered at will and responded to in kind, along with the capacity to store the more important exchanges. This goes some way to explaining what for some has become the intimate and hugely sentimental character of texting. The practices of reciprocity and the embodied give and take in messaging are closely aligned with the anthropological depictions of gifting that has, at its heart, the object of sustaining intimate social relations (Taylor and Harper, 2003).

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The billing system has not been immune to this complex interplay between the social, economic and technical aspects of SMS. On the face of it, the flat rate and relatively small charge for sending a message has been explained as reason enough to opt for the sending of an SMS over the making of a voice call (when the pleasantries of talk are considered unnecessary). In the UK the cost to the user of sending an SMS has remained more or less stable at a nominal 10 pence (approx. €0.07); set alongside a tariff for voice calls that was originally three times that figure the motivations and drivers have appeared simple enough. Even teenagers who have been continuing their unabashed usage of the service claim the management and reduction of cost to be one significant reason for its popularity (Grinter and Eldridge, 2003). On closer inspection, however, the issues surrounding charges appear less obvious. Taking into account the message's essence as a treasured item, or gift, it would seem that its monetary value has some bearing on a sender's social standing and thus cannot be simply glossed over through naive economic explanations. Teenagers' measures of frugality stand as testament to this; messages sent over the Internet using free services are deemed cheap amongst teens and, worse yet, those who are thought to be too mean to reply to a message at all are subject to all out exclusion (Taylor and Harper, 2003). Such social pressures can mean protracted 'conversations' over SMS between teenagers, thereby incurring bills they appear unwilling or unable to curtail.

The importance of a message's social value has not, of course, meant that texters (as they are colloquially known) have settled for paying for their obsession. Users, and particularly teenagers, have shown they are aware of the complex billing offers operators have used to lure its customers and throw off the competition (Grinter and Eldridge, 2003). This was evidenced during the fierce price wars and offers of 'free' minutes and 'free' texts that took place in the UK in the late 1990s. These business adjustments gave the more astute SMS adoptees – again more often than not those youngsters from 16-25 – a means of maximising free message quotas by juggling

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what service providers they used and when they used them. Rather than carry multiple phones, texters could switch between their all-important SIM cards – a practice that played its part in the spawning of a black market for the exchange of phones in playgrounds, school canteens and other less salubrious environs.

### **Whatever next?**

The outcome, so far, of the unfolding SMS history has been the transformation of a product from a technologically designed concept to a mass-market service generating unprecedented revenues for the industry (representing 16% of total revenue for the UK mobile telecoms industry, and amounting to somewhere in the region of 2 billion messages sent each month in 2004<sup>10</sup>). Over its 7-year life span, SMS has been a boon for the mobile phone industry and it has carved out a weighty place in the hearts and minds of consumers.

Although what we have reported on in this chapter is only a tiny glimpse of all that has occurred to make SMS what it is today and much of it in the last section is skewed towards research into young people (incidentally, where the majority of social science research has thus far been undertaken), the broad point to be gleaned is that the SMS history is full of remarkable twists and turns. At no point is it possible to pause and hope that a single snapshot can account for all that has come before it or – as much as the industry would like – what might follow. Indeed, the relations between the assemblies – the imbroglio of human actors and their nonhuman counterparts – continue to grow increasingly complicated over time. The history continually unfolds from multiple standpoints where trajectories are set through unpredictable and sometimes ungainly associations.

With this multi-threaded history of SMS, more often than not the industry has had no choice but to respond to the market with alacrity and been given little opportunity to drive, let alone gain insight into, how the broader mobile messaging market might

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take shape. Any implied scepticism for complete and accurate renditions of the unfolding history of SMS should not, however, be taken as a surrendering to some inexorable fate. Matters of some importance can be taken from the broader point of the presented SMS history that might offer the mobile telephony industry a juncture from which to reflect and answer ‘whatever next?’.

The SMS history offers important lessons for those trying to make the most of what can be best described as the ‘3G Challenge’. Third generation mobile communication companies have landed themselves in all sorts of trouble with the massive fees they have paid out for network licenses (fees they may find hard to recoup), the technological difficulties they must confront in implementing a robust network, and very little idea of what 3G services might be attractive to customers. The surprise successes surrounding SMS reveal that technological innovation, market forecasts, and consumer understanding are far from sufficient in predicting how to produce profitable solutions. With hindsight in its favour, the SMS history reiterates what many a good business model has incorporated; it offers a further reminder of the complex interplay that exists between all stakeholders – all actors – operating within a market. More importantly, perhaps, it suggests that, by intermingling with people, things, like text messages, mobile phones, cellular networks, business partnerships, are transformed into so very much more.

This perspective might help to give us some insight into the adoption of two interrelated offerings that both manufactures and mobile phone network operators hope will enable them to make good on the 3G venture, namely camera phones and picture messaging. At this stage it is unclear why, but with the launch and big push on the promotion of camera phones in 2003/4, the suppliers of picture messaging did not ensure the compatibility of devices and interoperability between networks. Although compatibility and interoperability have improved, the service continues to be troublesome for users. These problems have been compounded because the operations

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needed to send picture messages are not at all clear and the billing arrangements can be confusing with charges based on the size of pictures sent. Whatever the reasons for these problems, the industry's players probably hope that picture messaging will gain in popularity once the technological issues and interconnect agreements have been ironed out (as happened with SMS).

There is one key point that may put sway to this, however, that hinges on the complex interplay of mobile telephony and its uptake amongst users. Unlike SMS, where it was the consumers who played a strong part in driving technological and business developments, the industry has been on the offensive with picture messaging and it has promoted the service through a number of large campaigns. In light of these efforts, consumers' lacklustre interest in picture messaging suggests that the service is an altogether different beast than SMS. What the industry appears to have assumed is a simplistic determinism, relying on the tried and tested 'if-we-build-it-they-will-buy it' model of technological progress. The trouble is this standpoint on technological development ignores the real-world complexities that led to the proliferation of SMS; it glosses over the fact that what contributed to the popularity of SMS was the tight coupling of technological and business developments, and their intermingling with people's practical usage of the service and its unique properties – its 160 character limit, textual content, etc. and its complete lack of sophistication.

Upon closer inspection, and with particular attention given to the relations between camera phones and people's everyday practices, there are a number of reasons why the adoption of picture messaging cannot be seen as equivalent to the uptake of SMS. For instance, although the sales of camera phones have been high and early research indicates picture-taking is popular with phones, there remains a relatively low proportion of pictures actually being sent; the simple showing of pictures to those nearby is by far the most common use of the picturing features on phones (Daisuke and Ito, 2003; Lasen, 2004). Given that camera phone users have had difficulty

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finding others with compatible devices or messaging that works, this should hardly be surprising. What might be less obvious is that this practice of show-and-tell is not only something that predated picture messaging, with co-proximate phone users frequently sharing and comparing their text messages (Taylor, forthcoming; Weilenmann and Larsson, 2001), but is also something deeply ingrained in how we have learnt to orient ourselves around pictures, whether they be on paper or rendered digitally (Chalfen, 1987; Frohlich et al., 2002).

A further point is that it would appear that the pictures taken using camera phones have a quality that distinguishes them markedly from SMS messages (and photographs more generally). The camera phone pictures tend to have a mundane character to them (Daisuke & Ito, 2003). Typically, they will be of everyday objects or events, such as a meal, pet, the work or school commute, etc. This suggests that the pictures taken on phones end up serving a very different purpose to the usual content of a text message. The latter, as we have seen, tends to be ascribed importance through the textual content and the reciprocal back and forth that can ensue. Thus the message can come, through its very form, to embody intimacy and social ties. Picture messages, on the other hand, appear to be centred on capturing and representing a person's prosaic movements through time and space; they preserve the short-lived, momentary glimpses that make the banal extraordinary (Koskinen, 2004), with the phone's memory providing a means of making them immediately retrievable. The phone thus acts as a repository allowing intimacy and social connection to be achieved later, through opportunistic show-and-tells. Unlike SMS, what picture messaging tends *not* to be used for is to send carefully composed content (i.e., pictures) of one's self or one's participation in a special event. From a Westerner's perspective, at least, there seems something distasteful in such showmanship: a narcissism in the unwarranted "look-at-me!" quality of a message that is delivered to a recipient.<sup>11</sup>

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Of course, picture messaging will no doubt be used to send point-to-point messages, much as SMS has, and there are reported trends in this direction (Koskinen, 2004; Ling, Julsrud & Birgitte, forthcoming). What is relevant here and arguably more interesting is that the social practice of face-to-face picture sharing that has emerged has a good deal to do with the design of the mobile phone and the implementation of the picture messaging service. The phone's size, portability, 'at-handedness' and plain ubiquity all work together to render it a highly personal device that can be used to take snap shots at will, store the memorabilia of a day's routine, and show pictures to others who are close by. The idiosyncrasies of the service's point-to-point model (unchanged from SMS) mean that pictures are sent from one personal device to another so that there always appears to be the brashness of "look-at-me!", no matter how unintended. The billing model for the service also plays its part, of course. What we have learnt from SMS is that it is not so much the total cost of messages sent that dictates the use of the service, but rather how visible the cost is; because of their fixed price, text messages have a clear price tag. Picture messaging on the other hand – with its close association with 3G billing systems that are based on the amount of data sent and received – offers a far more complicated and, consequently, less appealing proposition to consumers.

These issues indicate picture messaging could benefit from quite a different service model. The trouble operators and manufactures face is how to invigorate the practice of sending picture messages through a service that either augments the current ways pictures are shared or produces some entirely new association with pictures. For example, a service can be envisaged that augments show-and-tell so that a picture's significance becomes something worked up between two or more parties rather than simply and unceremoniously delivered to the phone's 'inbox'. The features that are distinct to picture messaging because of the particularities of the camera phone and service must be oriented so that people feel that are participating in the common experience of showing and talking up pictures.

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A solution that accommodates show-and-tell, then, should do more than merely aim to support the collective practices of picture sharing by, for example, enabling text (or other media) to be combined with sent pictures. It should also aim to re-configure the point-to-point system. For instance, as Frolich et al. (2002) have suggested in their more general studies of photography and ‘photo-talk’, pictures take on meaning through the reminiscing and story-telling that accompanies shared viewings. A solution might thus be to provide a central repository for pictures where they can be viewed using mobile phones and commented on, much like the web-logs (colloquially known as *blogs*) that have become an increasingly popular method for presenting and discussing personal and often mundane accounts of daily life on the internet. Naturally, the interface issues on small-device displays would have to be thought about carefully for such a service, but the general point is that this solution seeks to move away from the point-to-point model that appears to be unsuitable for at least some forms of picture sharing.

Again, what remains of overall importance are the tightly knit and unfolding relations between any intended service and its use. One single factor cannot be seen to determine another. Rather the relations between a network of interacting agents and how they lend themselves to promoting one historical trajectory over others has to be taken into consideration. For the suggestion briefly outlined above, the device, service and social arrangements have been thought through in relation to one another and set out to promote the common practice of show-and-tell.

## **Conclusion**

The impetus for this chapter has been the desire to demonstrate how the relations between multiple entities intertwine in the ongoing development of technologies such as SMS. Although much of the material we have drawn on exists in the mobile phone-related literature, our intention has been to bring a number of seemingly disparate

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sources together in order to reveal how the multiple bodies, agencies, actors, things, etc. in a market operate in a collective process of production. Thus, what we have aimed to convey are the ways in which a heterogeneous collection of entities become entangled to make ever more complex networks and transform technologies into a great deal more than lifeless objects.

The SMS history has provided a useful device for this objective because it has amassed so many entities and interrelations between them over its short lifespan. The unfolding relations have been, from the outset, crucial in shaping the messaging service's history. Industry-wide agreements were interlinked with business models to form the basis for worldwide interconnectivity. These same agreements provided the scope for what was thought to be an inconsequential data channel over which short text messages could be at first received by mobile phones and later, through infrastructural changes, composed and sent. The mobile phone operators, along with their business models, fell back on the earlier successes of paging to envisage a service staffed by human operators targeted at business customers. Meanwhile, a grassroots user base emerged made up, largely, of young non-professionals. These young users were able to sustain mobile phone ownership because of the pre-pay options the phone operators had made available, and the flat rate and relatively low charge for sending SMS messages provided a popular means of managing costs. The technological constraints of mobile phones and the service, itself, gave rise to a texting shorthand amongst the more regular SMS users and gradually this evolved into a new argot, binding a collective of texters together through their common modes of expression.

Of course, the story continues and much more has been bound into the collective than presented here. What we catch sight of, though, is how it is that essays get written in hieroglyphics and mobile phones can become the cause of falling standards in literacy. We see the emergence of *things* that have agency, of technologies having

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their say through their inexorable part in the collective. It is this lesson that has been used to contemplate a history for picture messaging and camera phones. We have sought to dismantle the divide between the technological and social, the nonhuman and human, and reassert the collective by placing the picture messaging service in and amongst what people do. While this small example cannot do justice to all that is in store for picture messaging, what it serves to illustrate is that we have come too far with both SMS and the ways in which we handle pictures to hope for the repetition of the SMS history. A new history is upon us.

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## Footnotes

- 1 See <http://www.telegraph.co.uk/news/main.jhtml?xml=%2Fnews%2F2003%2F03%2F03%2Fntext03.xml>
- 2 GSM was the acronym for the *Groupe Speciale Mobile* the CEPT working group that laid out the specifications and standards for the first digital cellular system designed to enable the same mobile phone to be used on any network with GSM equipment. GSM was adopted as the commercial name for the service using the descriptive *Global System for Mobile Communications* to explain the acronym.
- 3 The air interface is the part of the mobile phone communication that occurs between the mobile phone and the base station.
- 4 Figure from GSM World <http://www.gsmworld.com> August 2004.
- 5 These systems allow characters to be inputted using a single key press and avoid the need for the laborious multi-tap method. Put simply, the system employs a dictionary with which it ‘predicts’ the most likely word that has been entered from consecutive key presses.
- 6 GSM MOU Association is subsumed within the new global industry body [www.gsmworld.com](http://www.gsmworld.com).
- 7 A Guide to Pan-European Digital Cellular Radio MOU-MP Document 4 Version 3.1.0 October 1990 GSM MOU Permanent Secretariat.
- 8 Mobile Data Association Figures March 2004. <http://www.mda-mobiledata.org/>
- 9 Figure taken from commercial report published by the Netsize Group, a developer of consumer and business SMS solutions (2003, *European SMS Guide: Enabling Mobile Business and Entertainment*. Paris, France: Netsize).
- 10 Figure taken from the Mobile Data Association’s records reported in July, 2004.
- 11 As Koskinen (2004) has shown in his study of multi-media messaging (MMS) use, this ‘posturing’ and one-upmanship can be used in picture messaging as a

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means to attract attention and encourage a response. It seems an unlikely and probably unpopular method to sustain one's social standing, however.

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