

Chapter 14

The Smartphone and Social Media



Key Topics

PDA
Smartphone
Facebook
Tweets
Twitter

14.1 Introduction

Smartphones arose as the outcome of the marriage of the existing mobile phone technology and PDA technology, and they contain advanced computing capabilities that are attractive to users. Today, the smartphone is ubiquitous, with most people in advanced countries owning one.

The introduction of the PDA by Apple and Palm played a role in the development of the smartphone, and its introduction facilitated a major growth of social networking. Users were now able to communicate news events or update their personal information in real time. Social networking sites such as Facebook and Twitter have transformed human communication.

Social media involves the use of computer technology for the creation and exchange of user-generated content. These web-based technologies allow users to discuss and modify user-created content, and it has led to major changes in communication between individuals, communities and organisations.

Facebook helps users to keep in touch with friends and family, and it allows them to share their opinions on what is happening around the world. Users may upload photos and videos, express opinions and ideas, and exchange messages. Facebook allows the user's community of friends to be actively kept up to date on important events that the user wishes to share.

Facebook has become an important communication channel for educated young people to discuss their aspirations for the future, as well as their grievances with society and the state. It has become an effective tool for protest and social revolution.

Twitter has become an effective way to communicate the latest news and its effectiveness as a communication tool increases as the number of a person's followers grows. It allows a person or organisation to determine what people are saying about it, including their positive or negative experiences. This allows direct interaction with the followers, and so it is a powerful way to engage the audience and to make people feel heard.

14.2 Evolution of the Smartphone

A smartphone is more than a mobile device for making and receiving calls, and it is essentially a touch-based computer on a phone, which comes with its own touch-screen keyboard, operating system, Internet access and third-party applications. It provides many other features such as a camera, maps, browser, email, calendar, alarm clock and games.

IBM (in a joint venture with BellSouth) introduced one of the earliest precursors of today's smartphones in 1993. This was the IBM Simon, and it included voice and data services. It acted as a mobile phone, a PDA and a fax machine, and it also included a touchscreen that could be used to dial numbers. It could send faxes and emails as well as making or receiving calls, and it included applications such as an address book, calendar and calculator. However, it was an expensive and large bulky device, and it was priced at \$900.

John Sculley, the CEO of Apple, coined the term '*Personal Digital Assistant*', and Apple introduced the first PDA, the Newton, in 1993. The Apple Newton included some nice features including limited handwriting recognition abilities. Xerox PARC had created a prototype PDA, the Dynabook, in the 1970s, but they did not commercialise it.

A PDA allows a large amount of data to be stored on a small handheld device. Palm introduced an early PDA device, the Palm Pilot 1000, in 1996, and this was used for mobile data. It played an important role in popularising the use of mobile data by business users. The Palm Pilot started the PDA industry, and it included 128 Kb of memory and 16 MHz of processing power. It had better handwriting recognition capabilities than the Newton and a graphical user interface (GUI).

The Nokia 9000 Communicator was released in 1996, and this phone combined the features of a PDA and a mobile phone. It included a physical QWERTY keyboard, and it provided features such as email, calendar, address book and calculator. However, it did not provide the ability to browse the web, and a colour display was introduced in the Nokia 9120 in 1998.

Qualcomm introduced its pdQ smartphone in 1999, and this phone combined a Palm PDA with Internet connectivity capabilities. Research in motion (RIM) released its first Blackberry devices in 1999, and these provided secure email communication into a single inbox. Samsung's first smartphone was the Samsung SPH-I300, which was released in 2001, and this Palm-powered smartphone is a distant ancestor of today's smartphones. Samsung introduced its SGH i607

Fig. 14.1 Apple iPhone 4

smartphone in 2006, and this Windows-powered phone was inspired by Research in Motion's Blackberry phone.

Smartphone technology continued to evolve through the early 2000s, and Apple introduced its revolutionary *iPhone* in 2007. This Internet-based multimedia smartphone included a touchscreen, and features such as a video camera, email, web browsing, text messaging and voice. The *iPhone* had a 3.5 inch 480×320 touchscreen, a QWERTY touchscreen keyboard and 4 GB of storage. Apple developed its own operating system, *iOS*, for the *iPhone*.

Google introduced its open-source Android operating system in late 2007, and the first Android phone was introduced in late 2008. Android is now the dominant operating system for smartphones and tablets, with *iOS* used on Apple's products. The Samsung Instinct was released in 2008, but it was based on an operating system developed by Samsung from various Java components. Although its touchscreen operating system was not in the same league as Apple's *iOS*, it became a competitor to Apple's *iPhone*.

Apple's *iPhone 4* (Fig. 14.1) was introduced in 2010, and this powerful smartphone has a 3.5 in. 960×640 screen and a 5-megapixel camera. The Samsung Galaxy S smartphone was launched in 2010, and this touchscreen-enabled Android smartphone became extremely popular. The Samsung Galaxy S series of smartphones have been very successful and have become a major competitor to Apple's *iPhone*.

Apple released the *iPad* in 2010, which is a large screen tablet-like device that uses a touchscreen operating system. Samsung is a major competitor to Apple in the tablet market.

14.3 The Facebook Revolution

Facebook is the leading social networking site (SNS) in the world, and its mission is to make the world more open and connected. It helps users to keep in touch with friends and family, and it allows them to share their opinions on what is happening around the world. Users may upload photos and videos, express opinions and ideas,

and exchange messages. Facebook is very popular with advertisers as it allows them to easily reach a large target audience.

Mark Zuckerberg (Fig. 14.2) founded the company in 2004 while he was a student studying psychology at Harvard University. Zuckerberg was interested in programming, and he had already developed several social networking websites for his fellow students including *Facemash* which could be used to rate the attractiveness of a person, and *Coursematch* which allowed students to view people taking their degree.

Zuckerberg launched '*The Facebook*' (thefacebook.com) at Harvard in February 2004, and over a thousand Harvard students had registered on the site within the first 24 h. Over half of the Harvard student population had a profile on Facebook within the first month. The membership of the site was initially restricted to students at Harvard, then to students at the other universities in Boston, and then to students at the other universities in the United States. Its membership was extended to international universities from 2005.

The use of Facebook was extended beyond universities to anyone with an email address from 2006, and the number of registered users began to increase exponentially. The number of registered users reached 100 million in 2008, 500 million in 2010, it exceeded 1 billion in 2012 and reached 2 billion in 2017. It is now one of the most popular websites in the world.

Facebook's business model is quite distinct from that of a traditional business in that it does not manufacture or sell any products. Instead, it earns its revenue mainly from advertisements, and its business model is based on advertisement revenue, with advertisements targeted to its over 2 billion users based on their specific interests. Facebook is essentially selling its users to advertisers (i.e. the users are the product). The users really do all the work, and Facebook collects data about them (e.g. age, gender, location, education, work history and interests) and classifies and categories

Fig. 14.2 Mark Zuckerberg



them, so that it may target advertisements that will potentially be of interest to them. This ensures that the advertisements are targeted to the right audience.

Social media have become important communication channels for educated young people to discuss their aspirations for the future, as well as their grievances with society and the state. The effectiveness of Facebook as a tool for protests and revolution is evident in the relatively short protests that culminated in the resignation of President Hosni Mubarak of Egypt in 2011.

Egypt has a young population with roughly 60% of the population under the age of 30, and the country has faced many challenges since independence such as improving education and literacy for its young population, as well as finding jobs for its citizens.

Facebook provided a platform for Egyptian youth to discuss issues such as unemployment, low wages, police brutality and corruption. Young Egyptians set up groups on Facebook to discuss specific issues (e.g. a group that aimed to provide solidarity with striking workers was set up). Further momentum for revolution followed the beating and killing of Khalid Mohammed Said, as photos of his disfigured body were posted over the Internet and went viral. An influential Facebook group called '*We are All Khalid Said*' was set up, and the killing provided a tangible focus for solidarity among young Egyptians.

The protests lasted for 18 days and it led to hundreds of thousands of young Egyptians taking to the streets and gathering in Tahrir Square in Cairo. They demanded an end to police brutality as well as the end of the 30-year reign of President Hosni Mubarak. The authorities reacted swiftly in closing the Internet in Egypt, but this act of censorship failed to stop the demonstrations and protests. Social media played an important role in mobilising protests, and in influencing the outcome of the revolution.

14.4 The Tweet

Twitter is a social communication tool that allows people to broadcast short messages. It is often described as the '*SMS of the Internet*', and Twitter is an online social media and micro-blogging site that allows its users to send and receive short 140-character messages called '*tweets*'. The restriction to 140 characters is to allow Twitter to be used on non-smartphone mobile devices.¹ Twitter has over 300 million active users, and it is one of the most visited websites in the world. Users may access Twitter through its website interface, a mobile device app or SMS.

Jack Dorsey (Fig. 14.3) and others founded the company in 2006. Dorsey introduced the idea of an individual using an SMS service to communicate with a small group while he was still an undergraduate student at New York University. The word '*twitter*' was the chosen name for this new service, and its definition as '*a short burst of information*' and '*chirps from birds*' was highly appropriate.

¹Twitter plans to increase the character limit of the tweet to 280 characters.

Fig. 14.3 Jack Dorsey at the 2012 time 100 Gala



Twitter messages are often about friends telling one another about their day, what they are doing, where they are, why they are thinking and doing, and Twitter has transformed the world of media, politics and business. It is possible to include links to web pages and other media as a tweet. News such as natural disasters, sports results and so on are often reported first by Twitter. The site has impacted political communication in a major way, as it allows politicians and their followers to debate and exchange political opinions. It allows celebrities to engage and stay in contact with their fans, and it provides a new way for businesses to advertise its brands to its target audience.

A Twitter user may select which other people that they wish to follow, and when you follow someone their tweets show up in a list known as your *Twitter stream*. Similarly, anyone that chooses to follow you will see your tweets in their stream.

A *hashtag* is an easy way to find all the tweets about a topic of interest, and it may be used even if you are not following the people who are tweeting. It also allows you to contribute to the topic that is of interest, and a hashtag consists of a short word or acronym preceded by the hash sign (#). Conferences, hot topics and so on often have a hashtag.

A word or topic that is tagged at a greater rate than other hashtags is said to be a *trending topic*, and a trending topic is often the result of an event that prompts people to discuss the topic. Trending may also result from the deliberate action of certain groups (e.g. in the entertainment industry) to raise the profile of a musician or celebrity and to market their work.

Twitter has evolved to become an effective way to communicate the latest news, and its effectiveness as a communication tool for an organisation increases as the number of its followers grows. An organisation may determine what people are saying about it, as well as their positive or negative experience in interacting with it. This allows the organisation to directly interact with its followers, which is a powerful way to engage with its audience and to make people feel heard. It allows

the organisation to respond to any negative feedback and to deal with such feedback sensitively and appropriately.

The first version of Twitter was introduced in mid-2006, and it took the company some time to determine exactly what type of entity it was. There was nothing quite like it in existence, and initially it was considered a micro-blogging and social media site. Today, it is viewed as an information network rather than just a social media site.

Twitter has experienced rapid growth from 400,000 tweets posted per quarter in 2007, to 100 million per quarter in 2008, to 65 million tweets per day from 2010, to 140 million tweets per day in 2011 and to 500 million tweets per day in 2016. Twitter's usage spikes during important events such as major sporting events, natural disasters, the death of a celebrity and so on. For such events, there may be over 100,000 tweets per second.

Twitter's main source of revenue is advertisements through '*promoted tweets*' that appear in a user's timeline (Twitter stream). The first promoted tweets appeared from late 2011, and the use of a tweet for advertisement was ingenious. It helped to make the advertisement feel like part of Twitter, and it meant that an advertisement could go anywhere that a tweet could go. Advertisers are only charged when the user follows the links or re-tweets the original advertisements. Further, the use of tweets for advertisement meant that the transition to mobile was easy, and today about 80% of Twitter use is on mobile devices.

Twitter has recently embarked on a strategy that goes beyond these advertisements to sell products directly (including to people who do not use Twitter). Twitter also earns revenue from a data licensing arrangement where it sells its information to companies who use this information to analyse consumer trends. Twitter analyses what users tweet to understand their intent. For more detailed information on Twitter, see (Schaefer 2014).

14.5 Social Media and Fake News

Fake news is the systematic spreading of misleading or false information in traditional print or online social media, with the intention of misleading or damaging another person or institution. It can negatively affect individuals in a country and lead to violence or hate against minority ethnic groups. The popularity of social media sites such as Facebook have contributed to the spread of fake news, and this new phenomenon poses threats to twenty-first-century democracy. Fake news may be spread by individuals, organisations and hostile states, and it consists of news that has no basis in fact, but which is presented as being factually correct.

Fake news in the form of propaganda has been around for centuries, where such news is generally published for political reasons. Military leaders have often embellished their bravery and result in battle throughout history (e.g. Ramses II's description of the Battle of Kadesh in the thirteenth century B.C. paints a very positive but factually inaccurate account of the battle).

Following the invention of the printing press in the fifteenth century, news publications became popular, and over time fake news stories appeared in the print media. Fake news played an important role in propaganda during the first and second world wars, with radio broadcasts and printed material used to persuade the public at home as well as discouraging enemy troops. Today, modern society is highly dependent on accurate information in the print, radio, television and online media. The effectiveness of fake news increases when the stories spread widely (as often occurs in social media), and where users interact with and rely on these stories rather than on traditional news media.

Fake news played a key role in the 2016 presidential election in the United States, which led to the election of Donald Trump. Most of the fake election news in the last 3 months of the campaign were anti-Clinton, but it is very difficult to determine the extent to which this influenced the outcome of the election. Trump and his supporters seem to use the word 'fake news' to refer to the mainstream media that is opposed to him and his policies.

It is important when considering the accuracy of an article to consider the source of the news (e.g. is it written by a reputable news organisation such as the BBC or Reuters?), as well as considering the authenticity of its authors and the supporting sources. Fake news is a deeply disturbing Internet trend that needs to be resolved if technology is to serve humanity. Modern technology has provided many benefits to modern society, but it needs to be managed effectively.

Fake news is a dangerous trend in society, as false news can spread easily due to the speed and accessibility of modern technology. It allows individuals to be misled and negatively influenced. Online social media sites such as Facebook and Twitter have a responsibility to develop appropriate solutions to address this serious problem.

14.6 Review Questions

1. What is a PDA?
2. What is a smartphone?
3. What is social media? Explain how sites such as Facebook and Twitter have transformed human communication.
4. Explain how a company may use social media to market new products to its customers.
5. Explain how social media has been used as a tool for protest and revolution.
6. Why has Twitter been described as the SMS of the Internet?
7. Explain how social media has facilitated the spread of fake news.

14.7 Summary

A smartphone is essentially touch-based computer on a phone, which comes with its own keyboard, operating system, Internet access and third-party applications. It provides many other attractive features such as a camera, maps, calendar, alarm clock and games. It arose from the marriage of mobile phone technology and PDA technology.

The smartphone has facilitated a major growth of social networking, as users are now able to communicate news or update their personal information in real time. Social media involves the use of computer technology that allows the creation and exchange of user-generated content. It has led to major changes in communication between individuals, communities and organisations. Social networking sites such as Facebook and Twitter have transformed human communication.

Facebook helps users to keep in touch with friends and family, and it allows them to share their opinions on what is happening around the world. Users may upload photos and videos, express opinions and ideas, and exchange messages. It has become an important communication channel for young people to discuss their aspirations for the future, and it has also become an effective tool for mobilising protests and social revolution.

Twitter has become an effective way to communicate the latest news, and its effectiveness as a communication tool increases as the number of its followers grows. It allows a person or organisation to determine what people are saying about it, as well as their positive or negative experiences.