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DIGITAL SOCIETY

Key questions

- What is digital society?
- What is the relationship between technology and social change?
- What does it mean, from a social perspective, that things are digital?
- In what social and historical context was the internet created, and how has it evolved?
- What does it mean that 'media are social environments, and that social environments are media'?

Key concepts

Digital society * digital media * the internet * social change * post-industrial society * information society * media ecology * media logic

Today we have the internet. We have smartphones. We have apps, social network services, blogs, and media sharing platforms. One stunning statistic after another tells us about the extreme amounts of information and knowledge — much of it created by 'ordinary people' — flowing through the silicon, copper, optical fibre, and wireless infrastructures in the skies, under the ground, and in our laps and pockets. Indeed, most people are quite well connected, and instead of digital things *in* society, we increasingly have *digital society*. It wasn't always like this, however. Like the wheel,

the printing press, the steam engine, the telephone, and television before it, digital media have put their mark on society of today. At the same time, people in society continuously contribute to shaping the new media through the ways in which they use, adapt, or resist them. In general, this process of society transforming and being transformed by media happens along the lines of what historian of technology Melvin Kranzberg (1986: 545–546) has called Kranzberg’s first law. It goes like this:

Technology is neither good nor bad; nor is it neutral. [...] Technology’s interaction with the social ecology is such that technical developments frequently have environmental, social, and human consequences that go far beyond the immediate purposes of the technical devices and practices themselves, and the same technology can have quite different results when introduced into different contexts or under different circumstances.

This book is about digital media and society, and I have chosen to use the concept of ‘digital society’ throughout the book to refer to the result of the equation of digital media + society. As you will soon become aware, there are many other potential suggestions, both for what is the best equation for describing society today, and as regards to how it is best resolved. This is because social scientists love to name things. We like to develop sets of concepts — theories — that we imagine will grasp some of the key features of some slice of reality. Among the things we love the most is to give names to phases and periods in the history of society. The early sociologists battled each other to put labels on the emerging industrialised society and early modernity, and on social patterns and phenomena within those frameworks. Since about half a century back, the race is on to characterise our present age of multitude, fragmentation, computerisation and global connectivity. As you will see in the first five chapters of this book, there is definitely no lack of suggestions, but there is, however, a lack of consensus over which concepts are the best. For the time being, then, let’s call our present society *digital society*. I mean then, society as affected by digitally networked communication tools and platforms, such as the internet and social media.

In this first chapter, I discuss what the *digital* is, and how it can affect the *social*. I give a historical background to the internet, a set of technologies at the centre of a relatively new form of society — the one that I call digital society, remember? Depending on whom you ask, this same society might also be called a post-industrial society, an information society, a network society or a number of other names. I also introduce in this chapter what *media* are, from a perspective where they are seen as *environments* for social interaction, rather than simply as channels for the transmission of information. The media environments of today are increasingly complex and entangled, as new tools and technologies are introduced so frequently.

Internet or internet?

The word for the globally interconnected network of computers is sometimes written with a capital ‘I’, and sometimes not. I have chosen to go with the non-capitalised version of the word in this book. I will talk about the internet rather than the Internet. Early in its history, in the 1970s, the name of this new fantastic network was most commonly written as ‘the Internet’, and this is still a very common form today. In fact, the internet is still quite fantastic. Actually, in some documents up until the early 1990s, the internet was even called the INTERNET, with all capitals.¹ While views differ, and there might indeed be some good arguments for retaining the capital ‘I’, one must decide on one of the options when writing a book like this. I think a good way of seeing it is that, today, the internet is incorporated into the lives of people in a way similar to radio (not Radio) and television (not Television). I have used the same logic in writing of the web rather than the Web.

MEDIA EVERYWHERE

For most people today, there is nothing strange or novel about using digital tools for doing social things. But those of us who were born before the major breakthrough of the internet still tend to refer to it, and the gadgets and software with which we interact with it, as something eternally new. This is because there is a tendency to make a connection between media and *social change*. Media are tools, channels, platforms and strategies which we can use to obtain, produce, and share knowledge about the world around us, through communication and interaction. Media are at the centre of how we, as groups and individuals, relate both to society at large — as a structure — and the many social activities that happen within it — as a setting for our lives together. Therefore, there is nothing odd or surprising really about people making sense of their lives, their sociality and their place in history through their relationships with media. Throughout history, different media, such as cave paintings, television, or the internet and mobile phones, have all played a specific role in how we relate to the world, and how we understand how society has transformed, and is continuously transforming.

But media don’t just enable us to say, think, and do things. They involve possibilities as well as limitations for how we can act and interact. This is what we mean when we say that they are *structures*. If we regard media as just television, radio, the internet,

¹ <http://volokh.com/2013/11/12/history-internet-typography-division-contd/>

and so on, there is, of course, life beyond media, where people can think, create, and do stuff. But a wider definition of media includes our very languages — both written and spoken — and the more abstract cultural and symbolic ‘mythologies’ and ways of thinking. Just as a 1980s television producer could not transmit either smell or touch to the audience, and a blogger in the 1990s could not embed video as easily as a blogger can in the age of YouTube, languages also ‘decide’ what can be said and done, or not. Depending on the media — broadly defined — that we can use, some things are more likely to be created, thought, done, or achieved than others. This is why a science of the social *must* deal with the media of its time. Beyond the specialisms of media studies, where things like film genres or journalistic conventions are analysed, there is also a need for sociologists to examine the role of media in a much more general sense. No matter if one adheres to Marxism; to the theories of sociological classics like Weber, Durkheim, or Simmel; to traditions in social theory such as symbolic interactionism, structuralism, or post-structuralism; there is always an interest in the tools and structures used in the creation and maintenance of social reality.

EXERCISE

Different tools and platforms that we use to get or spread information, and communicate, enable and limit what we can do in their own specific ways. The medium used will alter our ways of seeing, speaking, and acting. Think about the difference between learning about current events from the website of a big media corporation and from friends on Facebook or Twitter. In what ways are your uses of television and YouTube similar, and how do they differ? How do you act in a phone call as compared to in text messaging with the same person? Try to think of other examples of how different media lead to different ways of thinking and behaving.

Throughout history, key shifts in technological ability and practice have changed how people relate to the social sphere and the world around them. The invention of writing by the Sumerians around 3000 years BC enabled the transition from reliance on spoken word and memory to the preservation of laws, stories, and other items through the creation of written text. Media theorist Marshall McLuhan wrote, back in the 1960s, that one of the most crucial transformations of people’s ways of being social following the transition from oral to written cultures was the separation of thought and action. McLuhan claimed that this was because the process of externalising spoken sounds into media, such as letters, changed people’s ‘mental processes’. With the subsequent

historical emergence of other technological developments — the introduction of the printing press, radio, telephones, television, computers — McLuhan (1962: 32) identified a development towards an ‘externalization of our senses’ that creates:

a technological brain for the world. Instead of tending towards a vast Alexandrian library the world has become a computer, an electronic brain, exactly as in an infantile piece of science fiction. And as our senses have gone outside us, Big Brother goes inside. So, unless aware of this dynamic, we shall at once move into a phase of panic terrors, exactly befitting a small world of tribal drums, total interdependence, and super-imposed co-existence.

So, even if he was quite pessimistic about what life would be like inside the ‘electronic brain’ of society, McLuhan made the vital point that it is impossible to analyse or theorise about social and cultural change without focusing on how people and their communication and interactions are affected by the media that they use. Much like, as he put it (1962: 64), ‘the alphabet is an aggressive and militant absorber and transformer of cultures’, and that ‘a nomadic society cannot experience enclosed space’, any digital media application — Facebook, Twitter, YouTube, or any other — will affect and shape sociality, and influence what we can say, do, or experience, or not. At the same time, like I said before, people’s uses of the applications will also contribute in turn to shaping them.

So social science needs to concern itself with the roles of the prevailing media formats in the development of the social and how this evolves and transforms. This is especially important for the new media of any era, as they might be harder to approach critically during the time that we familiarise ourselves with these technologies and integrate them into our everyday existence. As scholars we must, as McLuhan (1962: 40) wrote, try to capture the new ‘translation of culture’ which happens alongside the introduction of new media technology. One particular challenge of this is that:

Every technology contrived [...] by man has the power to numb human awareness during the period of its first interiorization. (1962: 153)

Today, we live in a digital society in the sense that we are in an era where our lives, our relationships, our culture, and our sociality are digitised, digitalised, and affected throughout by digital processes. When we repeatedly speak of ‘the digital’ in this way, we use it as an encompassing notion for our current experience of social life. But what is ‘the digital’, really? Is it a purely technological phenomenon? How does it relate to humankind? To communication and interaction? Are there measurable qualities to what it is to be ‘digital’ or has it rather to do with subtler or gradual processes? What does it mean that society ‘becomes digital’? What changes have

digital media introduced to the forms and methods through which we relate to each other and the world around us, and how can such transformations be analysed?

ZEROES AND ONES

From the outset, the digital has to do with mathematics. Being digital, then, means simply using numbers — digits — rather than analogous objects to convey information. When some form of input is numerically encoded, it can be subjected to mathematical processes such as addition, subtraction, multiplication, or division, through algorithms — procedures by which computers carry out stuff — that are defined in software programs. In computing, input values are converted to binary numbers, 0 and 1, instead of using all numbers ranging from zero to nine. The binary system was invented by philosopher and mathematician Gottfried Leibniz in the 1600s. He used this system for coding, computing, and controlling information when experimenting with ideas for machines that could do calculations by using things such as marbles — being in place, or not — and punched cards — having holes, or not. This is how the computers that we have today, in anything from smartphones and laptops to refrigerators and drones, work too, but with refined microelectronics instead of marbles.

The usefulness of binary numbers for building computers, gadgets, robots, and the like, has to do with the electronic aspects, as in e(lectronic)-mail or e(lectronic)-democracy. In digital electronics, the number ‘0’ means that electricity is off, while ‘1’ means that it is on, and different computerised things communicate — transfer instructions and information — with the help of electronic pulses of these ones and zeroes. The power of binary is that it works with the smallest and most efficient computer programs, or circuits, which are created through series of 1/0 switches that are arranged so that they can perform various logical or mathematical operations. Technologically speaking, this binary system forms the basis for everything we do that is digital.

Experiments similar to those of Leibniz were developed by scientist Charles Babbage in the 1800s, through his work to first construct a ‘Difference Engine’ (difference as in the 0/1 idea of binary), and later, a more complex ‘Analytical Engine’. Ada Lovelace, who worked on creating instructions for the Analytical Engine, is considered to be the world’s first computer programmer. While neither the computer nor the code were ever finished or tested, these early attempts paved the way for the subsequent development of computers and software throughout late modern history. Lovelace, who wrote in her notes about possibilities for computing that included many other uses than just calculating numbers, was a visionary. She made the important distinction between numbers, and the operations to be performed, and the results to be achieved. She wrote in one of her notes that the Analytical Engine:

might act upon other things besides number, were objects found whose mutual fundamental relations could be expressed by those of the abstract science of operations, and which should be also susceptible of adaptations to the action of the operating notation and mechanism of the engine [...] Supposing, for instance, that the fundamental relations of pitched sounds in the science of harmony and of musical composition were susceptible of such expression and adaptations, the engine might compose elaborate and scientific pieces of music of any degree of complexity or extent. (Toole 1992: 178–179)

At their core, then, computers have been invented and developed to solve mathematical problems, but their actual capabilities, obviously, stretch far beyond mathematics. During the latter parts of the 20th century, digitisation had advanced beyond purely scientific applications, as text, sound, graphics, and images became digitally encodable. Today, computers can store and transmit data, which changes how we deal with anything from our family photos and recipes to government documents or business plans. We have also learnt that computers can manage communication networks, and this has transformed how we form friendships, and how we connect and stay in touch with people, sometimes across large geographical distances. Furthermore, computers can process text, images, and sound, which has changed the way in which writers write, musicians play, and painters paint. Spaceships and airplanes are flown by computers, and digital devices are increasingly entangled in our everyday lives, in the form of laptops, tablets, smartphones, and things like robot vacuum cleaners. Digitalisation of ourselves and sociality continually moves ever closer with wearable devices and smart scales, showers, and toilets. Still, at the heart of every computer lie circuits that contribute to all of these social and cultural transformations, through the breaking down of operations into mathematical equations. As Paul Ceruzzi (2003: 1), a computer historian, puts it:

Deep inside a computer are circuits that do those things by transforming them into a mathematical language. But most of us never see the equations, and few of us would understand them if we did. [...] As far as the public face is concerned, ‘computing’ is the least important thing that computers do.

When we speak of today’s society as being digital, we don’t very often mean to say that it just draws upon binary numerical operations. What we do tend to mean is that it has been transformed in a number of quite drastic ways, following the development of the early ‘computing’ machines into smart devices which have increasingly enabled large-scale networked connections, coordination, and communication in both automated and human-driven ways.

GAMES BETWEEN PEOPLE

The binary numerical system, and the advances in computing that were enabled by it, made digital information — the type of information which is stored using series of zeroes and ones — a crucial tool, dimension, and force of social life. This social transformation happened gradually during the 20th century, and is still constantly evolving today. In the early 1970s, sociologist Daniel Bell had already described the emergence of a future society where handling and relating to information would be at the very centre of daily life, even though today's social media, tablets, smartphones, and wearable devices might not have been exactly what he envisioned.

Bell (1973) used the term *post-industrial society* — which he later came to partly replace with the notion of an *information society* — to refer to entirely new forms of production and community that he claimed had replaced the previously prevailing industrial society. He said that this happened because of a powerful convergence between telecommunications and computer technologies. Bell talked about how different forms of work had been predominant during different historical eras, and argued that this had defined various types of society in different periods. Pre-industrial agricultural societies were dominated by the 'extractive work' of farmers, while the defining form of work in the subsequent industrial society had been the labour of fabrication, carried out by factory workers. The coming of the post-industrial society in the Western world, during the latter parts of the 20th century, was characterised by service employment and 'information activities'. Bell's idea was that as the form of work that was predominant in a certain era became rationalised to a certain level, a shift happened to the next form: when farming became highly automated, people turned to cities for work; as factories were increasingly robotised, people had to turn somewhere else.

Bell argued that what was emerging during the second half of the 20th century was an information society that met new needs that were arising among a post-industrial workforce. For Bell, the most important things that were then produced were services, and he felt that services were always 'games between people'. He said that information had become the material of work for a majority of people. Banks do transactions, therapists are engaged in dialogues, teachers convey and stimulate knowledge, software developers write code, and advertisers and journalists compose and transmit images and symbols. All of these jobs are about delivering services, and the service work that is done is also information work. As a result of this, Bell said that 'information professionals' represented the most prominent category of jobs on the new labour market. This did not mean that everyone was now a journalist or a marketer, but that nearly everyone deals with information in some form as a key part of their work. While Bell talked optimistically about this, in terms of 'the rise of knowledge experts', the same

development has more recently come under debate as critical researchers have seen both the information work of professionals and consumers in digital society as a sort of *digital labour* — a concept that I will return to in Chapter 9. What the likes of Bell saw in terms of opportunity, democratisation, personal development, learning, and enjoyment can, from another perspective, be seen as just another form of mass value production for the benefit of capitalists.

EXERCISE

Think about the notion of information work and information professionals.

Is it true that the majority of people today work with information in various ways? Envision a pre-digital society (agricultural or industrial) and try to think of jobs in that society which you think were *not* information work. Try to think of ways that those jobs might still be defined as being dependent on various forms of information. Think of some jobs today that are clearly about dealing with information. Now try to think of ways to argue that these jobs are also about material aspects of social reality. Do you agree that we now live in an information society? What has happened with industrial capitalism? Has it been replaced?

THE BEDLAM OF BLIP CULTURE

Another proponent of the post-industrial perspective, futurist Alvin Toffler (1970, 1980), claimed — like Bell — that mediated information was now to become de-massified. Instead of the standardised messages that were transmitted, broadcast as it were, through traditional *mass media* channels from a few select senders to the uniform masses of the many, we were now to get 'narrowcasting'. This idea is quite similar to what writer and entrepreneur Chris Anderson argued some decades later in his book *The Long Tail* (2006). Anderson said that things with small, niche audiences will survive, and are important, in the digital world, in ways that they could not possibly be in a situation where one had to focus on a small number of things with huge audiences. In the early 1980s, Toffler imagined that digital media would work very much like they do today. Writing about what he called the 'bedlam of blip culture', he predicted, as many writers and researchers have more recently discussed, that the myriad small pieces of content offered through electronic media over time will make people more active in navigating and piecing things together by themselves:

[People today become] more at ease in the midst of this bombardment of blips — the ninety-second news-clip intercut with a thirty-second commercial, a fragment of song and lyric, a headline, a cartoon, a collage, a newsletter item, a computer printout. [...] Rather than trying to stuff the new modular data into the standard [...] categories or frameworks, they learn to make their own, to form their own ‘strings’ out of the blipped material shot at them. (Toffler 1980: 166)

Another often emphasised feature of digital society is that it compresses time and space and makes them less important. For example, when we send texts, chats, or emails to each other, there is no need for us to be in the same place to be able to communicate. The exchange need not be instantaneous either, as we can respond to digital messages whenever it suits us. In Chapter 4, I will discuss such transformations in more depth. But for the time being, let’s just ask ourselves whether these characteristics of computer-mediated communication really are that revolutionary? Haven’t we already since ancient times — since the first symbolic language, actually — been able to get past limitations of space and time through various forms of mediated communication, ranging from rock carvings and pen and paper to the printing press and the telephone? This is a question of whether the coming of information society marks a *gradual difference*, or if it signals the transition into a *completely new form* of society. But more about that in later chapters.

In either case, Bell argued that the changed conditions for everyday micro-interaction brought on by digital technology contributed to profound social transformations. The power and influence of territorially based bureaucratic and political authorities would lessen, as would that of history and tradition. The punch clocks, schedules, and timetables that so strongly grounded and confined industrialism in space and time were to be replaced by other notions of time and space that were more fluid and dynamic — and that made physical presence less important.

Bell and Toffler generally thought that this development was steeped in opportunities, and they were both very optimistic about what was supposed to happen in the future. There would be no more manual work; people would become more intellectual and friendly; there would be an end to ‘radical politics’ (which they thought was a good development). Even though the high volumes of information floating about could sometimes be frustrating, and in spite of the stresses of blip culture, they both hoped — in Toffler’s (1980: 2–3) words — for ‘the death of industrialism and the rise of a new civilization’. Society was to become ‘more sane, sensible, and sustainable, more decent and more democratic than any we have ever known’. People would no longer be reduced to numbers, or analysed only in terms of how much income they could generate (this is interesting in relation to debates today about people being reduced to data more than ever). We would all live in a communal society where the

environment, care, and education were the priorities, at the cost of individualism, capitalism and competition (Bell 1973: 220, 283). There would be a sort of consensus democracy where no dictator could survive.

In Chapter 9 of this book, I will return to such issues of new forms and patterns of authority in digital society. But aside from the need to evaluate the actual consequences of these changes, there is also a debate about whether digital society (‘the information society’, ‘post-industrial society’) has happened at all. Of course, there is no denying that much of the assertions of these theorists are true. We need only look to our own daily lives to find plenty of proof that digital tools, platforms, and information are immensely important to most of us. Digital technology is an integrated and important part of a huge number — if not the majority — of common social activities. Banking and payments, travel and communications, culture and entertainment, cooking and cleaning, business and commerce. One can think of nearly any sector or activity, and quite easily realise how digital information is a rather vital part of things that go on there. We buy our train tickets in mobile applications, we stay up to date with global news on tablets, our cars and tumble dryers have smart microchips in them, environmental activists mobilise with the help of social media platforms, and so on. In short, it is very easy to make the case that we live in a highly digitised world which is abundant with information.

This is so obvious that even those who might be critical of the theories about the information society still agree that digital information plays a very important role today, and might do so even more tomorrow. For example, there are some Marxist theorists who were quite in opposition to Bell’s ideas about post-industrialism. Some of them suggested that we instead speak of ‘post-Fordism’ (Lipietz 1987), referring to a transition from an era marked by mass production to an era of ‘flexible specialisation’ (Piore & Sabel 1984). While such writers argued that capitalism, like in the industrial society, were to remain being the dominating force, they identified a number of changes similar to those discussed, for example, by Bell and Toffler. They said information processing had become more important, and that an increasing share of workers were now doing things with information, like analysing and manipulating symbols, managing ideas, and constantly retraining themselves to deal with the increased flexibility and globalised character of social reality. Similarly, theorists who have described the late 20th-century social transformations in terms of ‘post-modernity’ also argue that the new age is marked by increased symbolic complexity and intensified flows of information (Lyotard 1984).

TOWARDS SOMETHING NEW: EVOLUTION, REVOLUTION AND CRISES

But even if everyone seems to agree that we now live in a society where ‘information’, in its broadest sense, is crucial, does this automatically mean that the social and cultural

changes which have followed from the technological innovations in these areas have been enough to allow us to say that we have a *new* society? Are the changes comparable to what happened during the industrial revolution? While some writers obviously argue that this is the case, quite a few others remain sceptical. Critics, such as, for example, the Marxists mentioned above, have said that digital information technologies might have changed many things, but not the fundamental continuity of capitalist industrialism. After having convincingly argued in several ways that we indeed live in a society where flows of information are at the very centre, sociologist Manuel Castells (1996: 520) writes:

However, this evolution towards networking forms of management and production does not imply the demise of capitalism. The network society, in its various institutional expressions, is, for the time being, a capitalist society. Furthermore, for the first time in history, the capitalist mode of production shapes social relationships over the entire planet.

In making this point, Castells speaks of a *network society* rather than an information society. While these ideas are largely overlapping, I will deal in more detail with the idea of network society in Chapter 5. In either case, information society theorists like Bell and Toffler have been attacked by many for being historically short-sighted. Those who have denounced the ‘information revolution’ have argued instead that the developments during the latter half of the 20th century did not cause any dramatic shift, but was rather the culmination of trends in communication which stretch way back into the past. For example, sociologist and historian James Beniger (1986: 435) has suggested that we are dealing with a ‘control revolution’ that had already started in the mid-1800s:

The Information Society has not resulted from recent changes [...] but rather from increases in the speed of material processing and of flows through the material economy that began more than a century ago. Similarly, microprocessing and computing technology, contrary to currently fashionable opinion, do not represent a new force only recently unleashed on an unprepared society but merely the most recent installment in the continuing development of the Control Revolution.

Beniger’s argument is that ‘control crises’ followed from the acceleration of society’s entire processing system in the wake of the industrial revolution. In these crises, information-processing and communication technologies had a hard time keeping up with the speed of society. Thus followed the control revolution — a series of rapid technological changes in the arrangements used for collecting, storing, processing, and communicating information. These tendencies are in fact rather similar to what

is happening around the phenomenon discussed these days as *big data* (but more about that in Chapter 12). So what may appear to be the advent of a new informational society, Beniger argues, is rather a digital intensification of industrialism.

Throughout the following chapters of this book, I will deal with a number of research areas where studies have been made that, at least in some respects, can shed light upon whether the 1970s and 1980s prophecies and prognoses were right or wrong about what the emerging information society would entail in terms of social and cultural consequences. In most cases, we will see that the answer is neither a clear yes nor a definite no. As the digital society plays out in practice, things turn out to be quite a bit more complicated than those futurologists expected. In the end, it is not that important really whether one should label our present-day society ‘post-industrial’, ‘post-Fordist’, ‘post-modern’, or as an ‘information society’, ‘network society’ or a ‘control society’. Such debates might be interesting for theorists who want to lay claim to having ‘discovered’ and named a certain era. In the end, however, one must be very careful with such labels. Sociologist Krishan Kumar (2009: 29) writes:

Labels, like rumours, can take on a life of their own. The labels of intellectual discourse are no exception. Once sufficiently established, they can govern reality [...], at least scholarly reality. They inspire conferences, books, television programmes. They can create a whole climate of critical inquiry which, especially in these days of academic entrepreneurship and the multinational scholarly enterprise, feeds on itself. ‘The lonely crowd’, ‘the affluent society’, ‘the technological society’, ‘the hidden persuaders’, ‘the power elite’: these are all well-known examples of labels which in recent decades have generated much activity of this sort.

Indeed, there might also be ideological reasons for choosing certain concepts for describing things. ‘The information society’, and some of its related notions, actually fit quite well with Western neoliberal thinking. The idea that innovation and technology leads to a richer and hence better world maintains a faith, similar to that of the enlightenment, in progress and rationality. It is of course no secret today — with debates about surveillance, digital labour, consumer profiling, targeted advertising, and internet governance — that the information society idea is related to big business and large-scale politics.

In this book, I use the notion of digital society to refer roughly to all of these developments. The concept is just as awkward as any alternative, but I think it is important not to be blinded or constrained by concepts that carry a lot of historical baggage. I use ‘digital society’ in a pragmatic way, as a neutral label, when dealing with social and cultural uses and consequences of digital media, and this relates to realised, as well as unrealised, potentials for transformations at both micro and macro levels.

Digital tools and platforms

There are many ways of collectively naming the interactive activities and environments that people engage in online. When writing about these, I have tried to vary the words used to a certain degree, while at the same time keeping with a somewhat fixed set of formulations. You will see that I write of the environments as sometimes 'internet and social media', sometimes 'digital media' or 'digitally networked media', and sometimes as 'digital tools and platforms'. With these interchangeable wordings, I mean to refer quite generally to things such as computers, smartphones and tablets, and to services such as email, texting, Skype, YouTube, Facebook, Twitter, Instagram, Snapchat, blogs, forums, and so on. With these digital tools and platforms, people do things among and between each other. I will write about how people 'communicate' or 'interact', that they are engaging in 'computer-mediated communication', and that this happens 'online'. This underlines that in digital society, people in general are increasingly networked and interconnected through the internet.

THE INTERNET

Before moving on to a more specific discussion of what digital *media* might mean, we must focus first on one of the key inventions of digital society — namely, the internet. This global network of computers, which enables and structures an unmeasurable amount of social activity around the world, feels today as if it was always there. But in fact, it only became widely available in the mid-1990s, through the invention of a protocol for something called the World Wide Web. In reality, the history of the internet goes quite a bit further back than the 1990s, and it is important to keep in mind that its emergence was shaped by a number of specific circumstances. The web didn't just materialise, it was the product of certain efforts and projects.

In 1959, at the height of the Cold War, Paul Baran, a computer scientist at the RAND Corporation, a US military think tank, was given the task of creating a communications system able to withstand a nuclear attack. At least that's how the story goes. The strategy was to establish a computer network that did not rely on centralised command, and thus was not vulnerable to attacks targeting central hubs (Galloway 2004). Baran's network was based on the technology of packet-switching, through which messages are distributed in small fragments to be reassembled at the receiving end. The system was finally realised at the end of the 1960s through funding from the Advanced Research Projects Agency (ARPA), President Eisenhower's response to the Soviet Sputnik launch. The agency's ARPANET, the first computer network based on packet-switching, was used by the military and by academics to transfer

and exchange information. Castells (2002: 24–25) describes how the Network Working Group, which was doing most ARPANET design in the late 1960s, consisted mainly of graduate students who had studied in the same secondary school in Southern California, later to become students of Leonard Kleinrock at UCLA. The so-called RFCs introduced in 1969 by one member of this group — Steve Crocker — became important for the subsequent development of the internet as a space for open communication: RFCs (Request for Comments) were memos about work in progress, and their 'intelligent, friendly, co-operative, consensual attitude [...] set the tone for the way the Net developed' (Naughton 1999: 135). The young ARPANET developers, and the student culture of which they were part — as well as the wider context of late 1960s counterculture — had a great impact on how the global internet came to emerge. Castells (2002) writes that the birth of the internet happened at the rather unlikely intersection of science, military interests, and libertarian culture. It is a common misinterpretation that the internet was created solely as a military command-and-control mechanism, when it was in fact co-opted already from the start by academics (and others).

'E-mail', which was initially called network mail, was introduced in 1972, and the term internet itself appeared in 1974 as an abbreviation for 'internetworking'. Control of the network was transferred from the Department of Defense to the National Science Foundation by the end of the 1980s, and then to commercial telecommunications interests in 1995. The fact that a global telecommunications network was already in place increased the efficiency by which the network could be distributed globally. The previously mentioned user interface called the World Wide Web was developed in 1991 by programmer Tim Berners-Lee, at the European Organisation for Nuclear Research (CERN), which had adopted connections to IP addresses internally in 1985 and externally in 1989. The first graphical browser, Mosaic, was released in 1993, and by 1998, all countries worldwide were part of the network.

Since then tools using the internet infrastructure — such as the web, social media, and mobile apps — have become a crucial part of how people today obtain information, communicate, and interact. This digital and cultural ecosystem provides us with a language for relating to each other and the world around us. In that sense, the internet is a medium.

EXERCISE

You have read about the history of 'the Internet' as a military/academic project started in the 1960s. Since the mid-1990s, the internet has become increasingly commercialised and widespread. Today, it is ever present to the point where it is nearly transparent to its users.

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It tends to feel like part of our lives to the extent that we don't think about when we are 'on the internet' or not. Try to think of situations when the internet, as a technology, becomes visible to you. What types of situations are these? What do you think about them? How do you deal with them? What about when you hear of 'surveillance scandals'? What about when you are in situations when you can't access the internet for some reason? Try to think of other examples of when the net comes into view.

MEDIA AS ENVIRONMENTS, ENVIRONMENTS AS MEDIA

From the perspective of *media ecology*, the internet — as an intrinsic part of digital society — is a medium because it is an environment. And conversely, it is an environment because it is a medium. Media ecologists such as McLuhan (1964) and media theorist Neil Postman (1970) have maintained that media must be defined as something more wide-ranging than the traditional informational devices, such as radio, television, newspaper, movies, sound records, computers, and so on. Instead, they argued, a medium is any symbolic structure, or social environment, that in some way, and under certain circumstances, defines human interaction and the production of culture. From this perspective, a newspaper is a medium because it provides us with a certain way of relating to the world — through print text, still images, and certain journalistic genres and conventions. It also establishes limits, as a conventional old school newspaper does not allow for things like moving images, sounds, and online reader comments. In a similar way, from a media ecology perspective, coffee-houses, bowling alleys, and classrooms are also media, for the same reasons: they offer certain ways of relating to the world, while at the same time establishing boundaries for what can be said, done, expressed, learnt, or achieved. Sociologically speaking, this means that media, like the internet, are social structures.

According to sociologist Anthony Giddens (1984), social structures consist of two dimensions: first, the rules implicated when social systems are produced and reproduced; second, resources — symbolic and others — that people can draw upon while doing things in society. This is also similar to what social psychologist Erving Goffman (1959) wanted to say with his so-called 'dramaturgical' perspective on interaction. People in society enter different roles and stages, while performing socially with a degree of agency, but always in relation to certain limitations or expectations. The environment of the interaction thus affects what we do, and how

we do it. From the perspective of media ecology, media — such as the internet and its various incarnations and platforms — are such environments: symbolic structures within which we are situated and through which we engage.

This situatedness and embeddedness happens on two levels. First, there is the sensorial level, where things like a Facebook page, a Twitter profile, or an Instagram feed each employ our senses in different ways, much like reading is visual, radio is auditory, and video games are visual and auditory, as well as tactile. In a way, the reality we sense is constructed or reconstructed through the medium at hand. Famously, McLuhan (1964: 35) defined media as 'extensions' of our senses that decide how people experience and become aware of the world around them. This also relates to what McLuhan meant when he, even more famously, declared that 'the medium is the message'. Switching from one medium to another reconfigures our senses and alters the ways in which we comprehend and reconstruct the world around us.

Second, there is the symbolic level, at which every medium is constituted by a certain systematic set of rules and codes in the form of vocabulary, grammar, and other conventions. While a director creating a film has to master and relate to certain cinematic vocabularies, posting an Instagram photo might similarly require knowledge of conventions such as using hashtags and applying filters. And this is not mainly about knowing *how* to apply the filter or type the hashtag, but about mastering the social rules for *when* to use them and how to make them *mean* certain things. As we learn these skills or attitudes, we are at the same time socialised and acculturated into the symbolic environment of the medium. In this sense, a medium is quite similar to a language or a culture that is used to make sense of the world.

Media ecologists talk of some major changes throughout history and how these introduced crucial social transformations. The shift from a culture of talking to a culture of writing meant that the elders' role as experts and unique sources of knowledge diminished. The introduction of the printing press meant a further democratisation of information, and the arrival of electronic media contributed even more to balancing the temporal, spatial, and symbolic constraints for who could speak, where and when, and to whom. Today, we live in a world with a growing number of co-existing media, which means that we relate not to one, but to a combination of several environments. It is not sensible to conceive the internet as part writing, part still image, part moving image, part sound, part computer, part telephone, part television, and so on. Rather, it must be approached as a whole, and then as a whole that might be more than the sum of its parts.

While the content of radio, television, or the internet might be a football game or a political debate, the *message* — in McLuhan's terms — of each of these media is not that. The message is instead equal to the social changes that a medium generates. He wrote (McLuhan 1964: 20) that 'the "message" of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs'. He also argued

that the content of a medium is always another medium: the content of television might be the medium of a theatrical play, the medium of football, and so on. He wanted to make the point that by just studying the content, we risk becoming entangled in this spiral of media within media within media. It was therefore better, he thought, to instead focus on understanding media in terms of the ways in which they transform the social.

The user

The word 'user' might have a negative ring to it. And this is not only in those cases when it is related to drugs and addictions. In computing, there is the concept of the 'end user' who stands in contrast to the expert developers, programmers, or hackers who command the system, product, or service to be used. The end user is assumed to be less competent than the experts. In discussions of 'media use', the notion of usage tends to evoke an image of audience behaviours where something is served up for people to use, in order for them to get various forms of gratifications. The user, then, appears not only to be less knowledgeable, but also less resourceful and creative. In media studies during the last few decades, however, there has been increased talk about users being active. They have been shown to be just as competent as the creators of content. Their expertise is sometimes of a different kind, and comes into expression in how they make use of media content in smart and unexpected ways. But more and more often they also create entirely new things by and for themselves. Because of this, words like *prosumer* or *produser* or *participant* have become more popular than 'user' in some contexts. In this book, I have still opted for the word 'user' in many cases. I do this from a pragmatic perspective as I think it is a neat word which is easy to use (I) and understand, and because using things may indeed also mean using them to produce or create something other or new. I definitely agree that users of digital tools and platforms may indeed draw on these tools and platforms in their own production and circulation of things (tweets, blog posts, video clips, remixes, manifestoes, etc.). They may use them to participate, and they may use them in ways that alter their intended or current meanings and functions.

ENTANGLED MEDIA

This leads us further onto a set of interrelated theories about remediation, mediatisation, and media logics – theories which all deal with different and overlapping aspects of the increased complexities of how media affect, and are affected by, our

everyday lives. Writing about *remediation* — how digital media continuously absorb and repurpose other forms of media — media scholars Jay David Bolter and Richard Grusin (1999) felt that McLuhan's notion of media nested within other media might not be refined enough to describe the direction that this process has taken in digital society. On the one hand, they show how this nestedness or layering can contribute to a sense of immediacy. A computer user might be so familiar with a particular interface that, when using it, it becomes transparent to him or her. Likewise, a gamer might be so immersed in a particular world or story that he or she forgets about the mediated aspects of how the story is told. Thus, the content of digital media might be experienced in very immediate ways. On the other hand, Bolter and Grusin write about 'hypermediacy' which is, in a way, the opposite. This is what occurs when the interface is instead very obvious and visible, allowing for the user to interact with it, as, for example, on a website where different views can be selected or toggled, or with any platform where profile photos and info are added, where templates are customisable, and so on.

Digital media also affects the social by playing a large role in processes of *mediatisation*. Mediatisation describes how media have become an increasingly entangled part of our realities, a process that is accentuated by digital technology. This is not only in terms of how the mere quantity of media platforms and communication tools have increased. It is just as much about qualitative changes in how media communication is dispersed in new ways — temporally, spatially, and socially in digital society. Technologically mediated communication is now accessible all the time, at any place, so that more and more social settings are affected and shaped by communication through media.

The process of mediatisation is in turn linked to what has been called *media logic*. Media researchers David Altheide and Robert Snow (1979), who are considered to be the originators of the concept, presented the theory of media logic as a critique of the one-sided focus in mass communication research on the effects of media content on audiences. Instead of looking at the media as 'variables of impact', they argued that one must comprehend the *contextualised* role of media. How does a medium function as a form of communication, and how do they change our ways of seeing, speaking, and acting? This is similar to what McLuhan said.

To describe what media logic is, Altheide and Snow referred to classic sociologist Georg Simmel, who was interested in what he called *social forms*. Social forms, such as domination, conflict, or exchange, could be studied, Simmel (1971) said, separately from the actual content of specific occurrences of such forms. In other words, the interesting thing for a sociologist is the 'form' of, for example, conflict as it might occur and re-occur throughout times and places, rather than the specific content of any one conflict, and so on. Similarly, Altheide and Snow (1979: 15) said that a media logic consisted of a certain form for transmitting information. This means that

the media researcher looking at such logics is interested not in specific content, but in how media operate as forms for organisation, presentation, and communication. Therefore, a media logic is a ‘processual framework through which social action occurs’. Studies of for example sports events, protests or politics, using data from digital media communication, can be carried out within fields like sports studies, social movement studies, and political science, without necessarily being what I, in this book, call digital social research, and which is described in detail in Chapters 13–16. This is because digital social studies, relatively independent of the particular topic of communication, is interested in the (media) logic by which digital media alter social circumstances around, and for, sociality, communication, and interaction. Media scholar Stig Hjarvard (2013: 17) provides a clear definition:

The term ‘media logic’ is used to recognize that the media have particular modus operandi and characteristics (‘specificities of media’) that come to influence other institutions and culture and society in general, as they become dependent on the resources that the media both control and make available to them. [...] The logic of the media influences the social forms of interaction and communication, such as how political communication is performed in the media [...] and media logic also influences the nature and function of social relations, as well as the relationships between sender, content, and recipient of communication.

From this perspective, the analysis of a blog would not have to be mainly about the actual topic of the blog — what it is specifically saying about fashion, racism, heteronormativity, or gaming. It *could* be about that, but in order to qualify as digital social research it would definitely also have to be about how the medium of the internet, and/or the web, and/or user-generated self-publishing, and/or blogs as platforms affect how social relations are constituted, and how they function. It would also have to ask questions about what this particular medium does to the relationships between what is said, by whom, to whom, as compared to how those things work in other media or environments — following other ‘logics’.

So as you can see, thinking in terms of media logic does not have to mean that all media follow one, unified rationality. This might be the case in some studies of media logic, where focus has largely been on the meaning production of mainstream news (preferably on television). More generally, however, the notion refers to a variety of ways of working (‘modus operandi’ as Hjarvard has it) that different media might have. Different media distribute resources differently, and adhere to different formal and informal rules, opportunities, and limitations.

So, while politics in the 1980s were mainly confronted with processes of medialisation in having to adjust their ways of speaking to get the maximum impact in newspapers and on television, politics today in digital society can meet

a wider range of different media logics: that of mainstream corporate media, that of citizen media, that of viral messages, that of the likes of social actors such as Anonymous and Wikileaks, and so on.

ABOUT THIS BOOK

While terms can differ — one might speak of online media, new media, ‘new new media’ (Levinson 2012), networked media (see Chapter 5), social media (see Chapter 2), participatory culture (Jenkins 2006), spreadable media (Jenkins et al. 2013), smart mobs (Rheingold 2002), networked publics (Varnelis 2008), etc. — what has been called digital media in this chapter is seated at the centre of an ongoing process of social transformation. This process is not only about zeroes, ones, and technology, but about the societal changes that result from, enter into, and work through the software and hardware. These changes include new textual experiences in terms of genre and form, new ways of representing the world, new relationships between people (producers and consumers, teachers and students, politicians and citizens, and so on), new conceptions of the relationship between the body, nature, and technology, as well as new patterns of organisation and production.

This book is about digital society — what has been thought and said about it, what it is and what it could be, and how it can be researched and analysed from a social perspective. In this first part of the book, about *theories*, I deal with the concept of *social media* (Chapter 2), and with the debates about whether the internet and social media are good or bad for society (Chapter 3). I also provide a framework for understanding how digital media have contributed to altering the parameters for how people interact and for how society is held together. In general, while analogue things tend to be fixed in time, space, and materiality, the digital tends towards a state of flux. It can move instantly across space and place; it can be edited, re-edited, and re-mixed. The digital also offers novel, low-threshold tools for the creation and circulation of content. It potentially enables new or transformed social roles and relationships (Chapters 4 and 5).

In Part II, on *topics*, I deal with a set of thematic areas at the intersection of the digital and the social. I discuss how the internet and social media might introduce new ways of seeing and feeling — or being seen and felt (Chapters 6 and 7). I also discuss how digitally networked media can contribute to challenging, altering, or potentially giving rise to new forms of participation, power, and politics (Chapters 8, 9, and 10). One chapter (Chapter 11) is devoted to how space and place are construed in partly new ways because of the central role played in digital society by mobile media, and yet another (Chapter 12) deals with the increasing social role of software, data, and algorithms. These themes are presented in order to provide an overview of a number of key topics within the social scientific study of digital media and society. Sociologists

David Beer and Roger Burrows (2007) identify three interrelated areas that especially require sociological engagement. These are:

- The transformed relationships between the production and consumption of content.
- The increasing amount of private information posted in the public domain.
- The emerging new rhetoric about democratisation and participation.

Beer and Burrows call for a renewed interest in sociological description, and think that social scientists must start reconsidering how they conceptualise current technologies, practices, and behaviours.

Part III, about *tools*, is about studying digital society empirically. As more and more people participate in an increasing amount of production of digital content, posting it to a number of networked platforms, huge amounts of data about strategies, choices, sentiments, views, preferences and so on are also registered and made available — to varying degrees — to researchers. While this development relates to problems of data ownership and the exploitation of these data for marketing or surveillance purposes, it also generates new opportunities for research. In the methods part of the book (Chapters 13–16), I will discuss the importance of mixed methods approaches when analysing emerging and rapidly changing phenomena such as those at the intersection of digital media and social transformations. Attention will also be devoted to some of the specific challenges — ethical and others — that are introduced when working with data from the internet and social media. I will introduce a framework for *digital social research* that rests firmly on an ethnographic foundation, but which also branches out into other techniques for mapping and mining digital society. In the concluding chapter of this book (Chapter 17), I present a theory about digital media and social change.

FURTHER READING

Ceruzzi, Paul (2012). *Computing: A Concise History*. Cambridge, MA: MIT Press.

This book offers a broad account of the history of computing from its very early days up to today's smartphones, and also gives a background to the internet, the web, and social media.

Webster, Frank (2006). *Theories of the Information Society*. London: Routledge.

Webster provides an introduction to several of the different theoretical perspectives on the information society, but also argues in favour of looking beyond ideas of a dramatic historical shift and instead looking at how social patterns that are long-established persist but become 'informatised'.

McLuhan, Marshall (1962). *The Gutenberg Galaxy*. London: Routledge.

Meyrowitz, Joshua (1985). *No Sense of Place*. Oxford: Oxford University Press.

Castells, Manuel (1996). *The Rise of the Network Society*. Malden, MA: Blackwell.

These books by McLuhan, Meyrowitz, and Castells are examples — from the 1960s, the 1980s, and the 1990s, respectively — of scholarly writing about new media and social change.

Altheide, David (1995). *An Ecology of Communication*. New York: Aldine de Gruyter.

In this book, Altheide, one of the originators of the notion of 'media logic', discusses how changes in communication media alter social processes, relationships, and activities. He underlines the importance of not just analysing the content of media, but also the different social environments created through different media.