

The Economics of Digital Transformation

The Disruption of Markets, Production, Consumption, and Work

**Katarzyna Śledziewska
and Renata Włoch**

First published 2021

ISBN: 978-0-367-70042-3 (hbk)

ISBN: 978-0-367-70044-7 (pbk)

ISBN: 978-1-003-14435-9 (ebk)

5 How is consumption changing?

CC BY-NC-ND 4.0

DOI: 10.4324/9781003144359-5

The funder for this chapter is University of Warsaw.

5 How is consumption changing?

Abstract

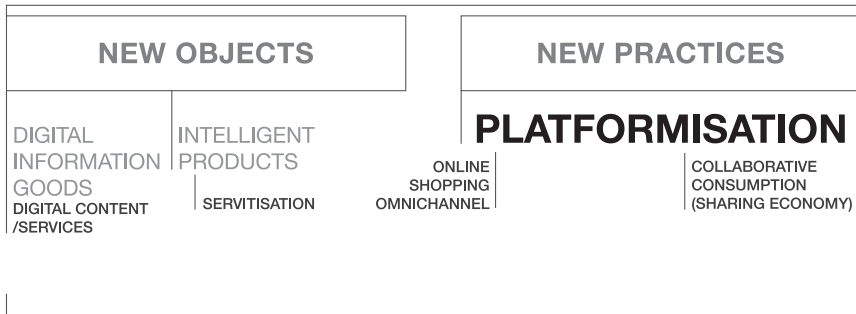
In the 1990s, the internet became a new site for – and of – consumption. **Digital devices** – PCs, laptops, tablets, smartphones, and smart speakers – have since become networked shopping channels, media sources, cultural and entertainment venues, and tools for governing our everyday lives. This does not mean that all consumption practices have moved online, but it does mean that more and more areas of consumption have become digitalised and then datafied. In this chapter, we set out to describe how widespread adoption of connected digital devices is changing the way people engage in consumption. We discuss the characteristics of the new objects of consumption – **digital information goods** and **intelligent products**. Our leitmotif is the growing role of platforms in mediating and shaping the practices of digital consumption. Through matching and recommendation algorithms, they facilitate the choosing of digital and material goods and services and support the development of **online shopping**. Skilfully using data produced by connected consumers and their devices, they aim to **personalise** their offerings.

The new objects of digital consumption

You would not exactly call Polish society a vanguard of the digital transformation. According to the Digital Economy and Society Index published by the European Commission Poland lags behind other European countries in terms of digitalisation (23rd out of 27 countries in 2020). Poles are well below the EU average for digital skills – only 44% of people aged 16–74 can boast basic digital skills. But still, the percentage of people using the internet is steadily growing, from 73% in 2018 to 78% in 2020. Three in four internet users read news online, watch movies, listen to music or play games, six in ten use video calls, shop online and use online banking.¹ 93% of Poles aged 18–34 own a smartphone, with the average for the whole population hovering around 63%.² Only 2.5% read e-books (but then only 39% read even a single book a year),³ and nearly 6.3% had a wearable device.⁴ Even in such relatively slow-moving societies, digitalisation steadily, though unevenly, penetrates every sphere of consumption.

DIGITALISATION OF GOODS & SERVICES

HOW IS **CONSUMPTION** CHANGING?



ABUNDANT DATA + INTELLIGENT ALGORITHMS

DATAFICATION

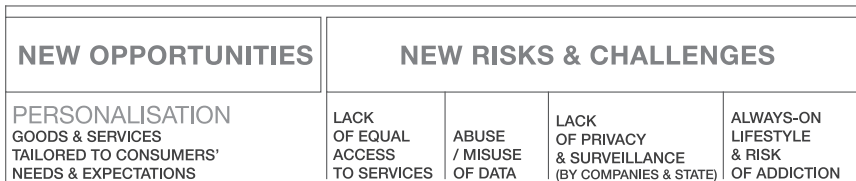


Figure 5.1 How is consumption changing? (scheme).

Source: Own elaboration.

As most of our daily activities are mediated, channelled and conditioned by technologies, the division between online and offline, the digital and the material, between goods and services, is becoming more and more blurred.⁵ The virtual internet reality is being supplemented by the physical network of connected devices known as the **Internet of Things**. In the digital economy, the range of the objects of consumption is being broadened by dematerialised digital information goods and digitalised material goods, i.e., intelligent products.

Digital information goods

Digital information goods can be defined as goods containing any kind of information, decoupled from their physical carriers such as paper, vinyl records or Blu-ray (i.e., dematerialised). A paper edition of *Pride and Prejudice* is an information good; the same book in digital format on my iPad is a digital

information good. Digital format offers a whole new way of consumption. Take music: you no longer need to buy a physical CD or remember to take it to play in your car – you can stream the music any time you wish. Moreover, you are not constricted by the structure of a long-player, which bundles together songs you really like alongside filler which you do not care for. You have a much greater choice of music genres and artists because new digital technologies and formats have decreased the costs of creative production. Coupled with the distributive, networked power of the internet, digitisation of physical content has increased access to ever cheaper and more abundant information goods, opening new vistas for the consumption of culture and entertainment.⁶ In 2018, 81% of internet users in the EU consumed digital information goods: they watched movies, listened to music, and played online games.⁷

The emergence of digital information goods has had a knock-on effect on the business models of the creative sectors.⁸ These goods differ from analogue information goods in several important respects. Saved in a digital format, a prototype can be copied any number of times without a reduction in quality: the user experience remains the same for everyone. This is a highly important change: some of us still remember how every subsequent copy of a piece of music recorded on a cassette picked up more and more hiss, or how the print in each successive xerocopy of a book got even more blurry. From the consumer's point of view, digital information goods are non-rival and non-exclusive – i.e., at the same time, with the same excellent quality, they can be enjoyed by a large group of recipients. Besides, digital information goods can readily be shared: for example by distributing a file via email or a torrent platform, or by 'lending' a friend your password to your favourite press website.

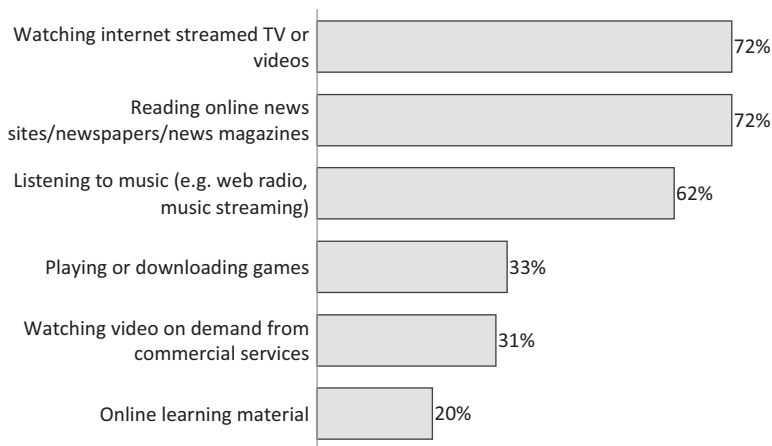


Figure 5.2 Internet activities (% of EU28 individuals who used internet in the last 3 months, 2018 or 2019).

Source: Own work based on Eurostat data [isoc_ci_ac_i].

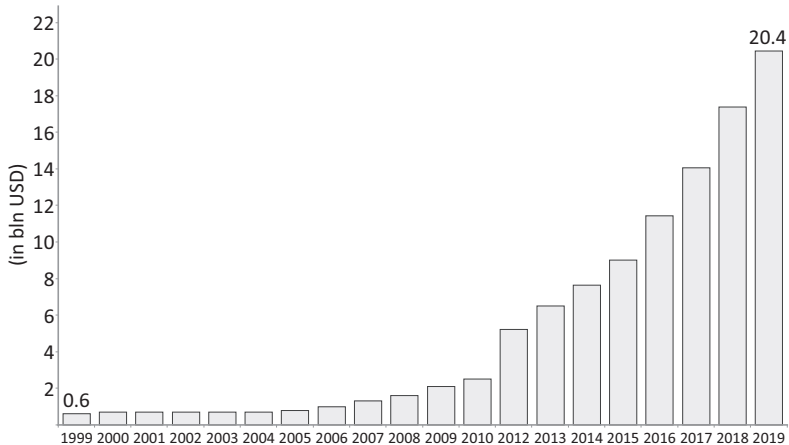


Figure 5.3 The US consumers spending on digital entertainment (in billion USD, USA, 1999–2019).

Source: Own work based on Digital Entertainment Group. 2020. *Consumer spending on digital home entertainment in the United States from 1999 to 2019 (in billion U.S. dollars)*. Chart. In Statista. www.statista.com/statistics/188941/us-consumer-spending-on-digital-distribution-since-1999/ (accessed 20 January 2021).

However, what is useful from a consumer perspective can be a real headache for manufacturers. In the case of information goods, the first copy is the most expensive. The cost of producing a movie, hit song, or computer game is often exorbitant. *The Witcher*, an open-world game produced by the Polish company CD Project, cost \$81 million to create.⁹ *Grand Theft Auto*, meanwhile, hailed as ‘Scotland’s largest cultural export ever’, took five years to make and cost \$265 million.¹⁰ The product can easily be replicated any number of times without sacrificing quality.¹¹ The incremental cost of delivery to additional consumers is also negligible. Piracy has therefore become a key challenge for producers, be it illegal downloading, or copying and sharing information goods.¹² This has called into question the very profitability of investing in the production of this type of good.

Initially, producers and the organisations which represented them tried to deter potential pirates with the threat of high penalties for illegally downloading and sharing digital information goods. The Recording Industry Association of America sued over 18,000 people in the first decade of the 21st century.¹³ In 2012, one American woman was forced to pay out \$220,000 for downloading and sharing just 24 works via an illegal service.¹⁴ Ever better connectivity and the development of cloud technologies have made it possible to find a better solution than this, one based on even more **dematerialisation**. Consumers no longer need to download files to their own hard disks; instead, they gain access to the works via the cloud. Typically the digital information goods are secured

by a tool (DRM, or a ‘digital rights management’) that prohibits the unauthorised use of the content, e.g., copying or downloading. As a result, the consumer does not acquire ownership of any music or book files, just a licence which provides temporary access. The conditions of the licence are determined by the provider and often stipulate that access may be quite freely denied or withdrawn. It has been proved that users rarely read EULAs – End User Licence Agreements, i.e., Terms of Service – mostly because these are written in legalese and are painfully long.¹⁵ In 2014 a cybersecurity expert set out to demonstrate that people tend merely to scan the EULA in order to click ‘I agree’ as quickly as possible. Indeed, six people were in such a hurry they ‘agreed’ to assign their firstborn child for all eternity, to a provider of free Wi-Fi at a hotspot in the centre of London.¹⁶ Even those consumers who do take the time to read these multi-page documents have little negotiating power – if they do not accept the terms of the service or good, as imposed by the producer, they are not able to access them at all.

A problem for the consumer arises when the licence expires. According to the Microsoft Online Service Terms, once you terminate your subscription to a service, after a specified time you lose access to all your data. As the conditions for the US version of Microsoft 365 put it: ‘All text, sound, or image files that are provided to Microsoft by, or on behalf of, the customer through the customer’s use of Microsoft 365 services.’¹⁷ The platform itself may also cease to exist. In July 2019, consumers who had bought e-books via Microsoft’s online store lost all access to their libraries. Admittedly, they were offered a refund or credit, but this did not change the fact that they could no longer use the ‘thing’ they had paid for.¹⁸ They lost access not only to the original books but also to anything they had created, e.g., notes or highlighting. This redefines the traditional notion of ownership – I own the thing I paid for – towards temporary access.¹⁹

A particularly interesting illustration of one such new configuration of access and ownership is that of **virtual goods**, i.e., those that are used in virtual worlds, such as online games. Assigned to a specific user’s profile, they can be bought and sold in accordance with the rules of a given virtual reality.²⁰ In the daily experiences of many players, material, and virtual consumption are mixed and combined: purchasing virtual goods can be just as satisfying as buying real goods and services since it satiates the need both for possession and for increased social status.²¹ Virtual goods, however, can be sold for quite real money via an intermediary, such as SkinWallet, a Polish company that trades in virtual goods used in video games such as Counter Strike and Team Fortress. Their most popular line is skins, i.e., different versions of equipment or different appearances for characters. These do not change the actual properties of items but build up a virtual image for the player in terms of aesthetics and prestige.²² A special algorithm automatically evaluates the seller’s goods, taking into account their rarity and how much in demand they are in the gaming environment. The company buys them for half the valuation and then resells them via external platforms, mainly through the highly popular Steam. Sellers may

decide to pay with ‘real money’, directly into a bank account, or they can send the payment to an e-wallet.²³

The discussion on changing configuration on access and ownership hinges on more basic question: are digital information goods still goods, if they have been stripped off their materiality, or are they perhaps really services? The issue of the division between goods and services is of great significance for the regulatory framework governing freedom of trade on the internal market in the EU. As there are differences in the way which goods and in which services are regulated, there is a need to state what is the character of digital information goods analysed from the legal perspective. In order to address this issue, the EU regulators resorted to some reasoning worthy of Solomon and introduced the idea of ‘digital content’, which means ‘data which are produced and supplied in digital form, such as computer programs, applications, games, music, videos or texts, irrespective of whether they are accessed through downloading or streaming, from a tangible medium or through any other means’. If, however, this digital content ‘is supplied on a tangible medium, such as a CD or a DVD, it should be considered as goods’.²⁴ The materiality was established as the main criterion which draws the line between what should be perceived as goods and what should be categorised as digital content. Such a strategy corresponds with the traditional criterion of division between goods and services.

Introducing the term **digital content**, however, does not provide sufficiently precise answers to the challenges which appear due to the digitisation of consumption. It does not diminish the role of the traditional division between goods and services, which might be perceived as outdated in the contemporary economy. Moreover, the definition refers to the context of consumer rights, thus digital content is the category describing data in only this limited scope. Provisions regarding contracts and consumer rights do not address other important questions which arise due to the growing popularity of digital services: is the metadata related to our digital footprints a digital content? What about digital goods within digital content, i.e., your own marginalia in an expired digital library? This is yet another example of the incompatibility of certain concepts and measures when faced with qualitatively new phenomena in the field that is the digital economy.

Intelligent products

In the digital economy, the difference between goods and services is again blurred when it comes to tangible, physical products which come supplied with digital applications that offer basic or additional functionalities for the consumer. This, in a nutshell, is the **Internet of Things**, or IoT.

The most popular consumer example of the IoT is wearables – smartwatches, smart clothing, smart wristbands, and smart jewellery. Household names and obscure startups are also scrambling to produce smart footwear. A French startup called FeetMe has designed insoles covered with 25 pressure sensors that not only monitor your daily fitness but also diagnose your health based on

your gait and how you move.²⁵ A South Korean startup that goes by the name of FootLogger uses only eight sensors, but it can record 50,000 footsteps and claims to be able to spot early signs of dementia.²⁶ Xiaomi, a company based in Beijing, China, has launched trainers with an option to insert an intelligent, battery-powered – and waterproof – module in either shoe to gather data when you run, walk or climb. Other examples are MiFit, which can monitor the calories you burn, or Google Fit,²⁷ which can synchronise your activity data. Wearable digital devices are gaining in popularity not only as ways to improve fitness and lifestyle, but also for healthcare, security, and even measuring worker productivity. In 2018 Amazon patented a smart wristband to track its workers' movements in its fulfilment centres.²⁸

Intelligent products or smart objects – from smart fridges to smart speakers – surround us both at home and in the workplace. Even your furniture is getting smart and will be able to predict if you will fall and call for help if you do.²⁹ An intelligent product blurs the boundaries between matter and technology, which determine how it functions. This raises dilemmas about ownership and access which echo those in the case of digital information goods. The producers of such digitalised physical goods are wont to supply the software necessary to use them bundled with digital rights management tools. This has a substantial drawback for users: it stops them from carrying out their own repairs or modifications. A case in point is John Deere, a giant American manufacturer of agricultural machinery. Its tractors operate using licensed software secured with digital rights management, which means that farmers cannot make repairs by themselves, on the spot, because they are not able to

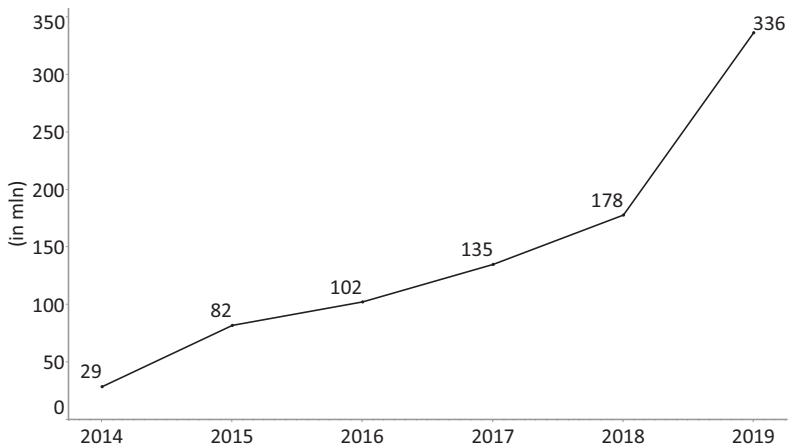


Figure 5.4 Wearables unit shipments worldwide (in million units, 2014–2019).

Source: Own work based on IDC. 2020. *Wearables unit shipments worldwide by vendor from 2014 to 2019 (in millions)*. Chart. In Statista. www.statista.com/statistics/515634/wearables-shipments-worldwide-by-vendor/ (accessed 7 January 2021).

circumvent the software. To quote one farmer: ‘You’re paying for the metal but the electronic parts technically you don’t own it. They do.’³⁰ The farmers’ only choice is to wait for a certified and expensive servicer, often during harvest time, or else to obtain illegal cracked software from Eastern European hackers. The inability to update and modify software may even render a machine obsolete before its time.³¹

The increasing digitalisation of physical products in daily use has allowed producers to collect a growing volume of data which opens up vast opportunities for personalisation. In theory, the more data a manufacturer has about the way a product is used, the greater the potential to adjust it to consumer needs, to make improvements, and to plan servicing and maintenance. The technological changes taking place in factories allow the production of limited batches of personalised goods, perfectly tailored to the needs of the consumer, and topped off with a whole host of services.

This digitalisation of material goods is just the latest guise of **servitisation** (which we have already addressed in Chapter 3).³² The word describes the way that companies’ business models are shifting from offering goods *or* services, to offering goods *and* services, and then to providing a complete package of goods, services, and customer support throughout the product’s life cycle.³³ However, only with the development of the Internet of Things, and algorithmic cloud computing, has it truly become possible to realise the full potential of servitisation to create new products which offer individualised characteristics to individual customers.

A great example of servitisation is Peloton, a brand of at-home bikes and treadmills equipped with a touchscreen and paired with a special application.³⁴ The Peloton business model neatly illustrates the concept of digital disruption: it was brought into the traditional sector of indoor gyms by a startup that understood the combined power of datafication, platforms, and personalisation. Users can exercise in the comfort of their own homes, without the hustle and bustle of a gym and the necessity of commuting there. Nevertheless, they can still feel that they belong to a networked community of fitness fans, brought together by dedicated groups that have exploded on social media.³⁵ This naturally doesn’t come cheap: customers pay about \$2,000 for the bike – and in addition, subscribe to an application \$12.99a month). The app enables the user to access personalised courses, streamed live or on-demand. Users can focus on developing particular skills, select their favourite music, or listen to an instructor who shouts at you just the way you like at the gym. The application adjusts the resistance, output, and cadence (speed) of the exercise to the individual abilities and needs of the user, and allows them to compare their results with others, sharing them easily on social media.³⁶

As one user puts it: ‘Those metrics are a part of the appeal [...] Instead of pedalling to the beat, instructors give you a specific target range of numbers for your cadence and resistance to fall into. Then, at the end of class, you’re given a final total for your output, a quantified number that represents all the effort you expended into that workout. The app neatly tracks and sorts all of your metrics,

showing your improvement with each workout.³⁷ The experience of exercise is dated and gamified – you chase your ideal yourself (‘This is between me and me’, to quote Monica Geller from *Friends*) and you are indelicately nudged to try to measure up to those 5608 others in your online class who got better results than you. This ‘connected fitness’ is intentionally addictive. The charismatic instructors, many of whom have become social media celebrities with thousands of followers, help to transform monotonous and inherently boring pedalling into a varied experience.³⁸ To sum it up, from the perspective of the user, the real value is provided by the app, not by the bike, similar to many other bikes on the market.

The Internet of Things will also change the way in which collective goods are consumed, particularly in cities. By 2050, two out of three people in the world will live in cities. Advanced analysis of abundant data from various sources, including wearables and sensors scattered around the city – is enabling better management of public infrastructure and more efficient use of scarce resources.³⁹ The collective consumption will be increasingly facilitated and orchestrated through public and private online platforms, which will enable efficient sharing of vehicles and other mobility devices, such as scooters and bikes. One example of these efficiencies are intelligent traffic systems which harness data that flows in constantly from sensors located in public spaces or smart waste management based on sensors inbuilt in garbage cans. Some cities ambitiously aim at building digital twins (more about digital twins in Chapter 3) of their infrastructure. Virtual Singapore, a project supported by Dassault Systemes, uses a 3D experience platform of the city, which may be used for virtual experimentation or digital modelling of real-life processes on the faithful replica of the city. The city architects can evaluate the planned construction in its surroundings beforehand, and the building owners may decide where to install solar panels on the basis of the data on sun exposition of the individual building.⁴⁰ An Indian city Amaravati, a new capital of the Indian province Andhra Pradesh was built together with its digital twin, which enables the city authorities to adjust to changing patterns of traffic, as well as respond to natural disasters with more precision and speed.⁴¹

From online shopping to the phygital experience

The potential of the internet as a convenient marketplace for goods and services was recognised from the start. Supposedly, the first tangible thing obtained via the internet was marijuana. Two resourceful students from Stanford and MIT, working on the ARPANET project, used the budding network some time between 1971 and 1972 to arrange the terms of the deal.⁴² Some commentators quibble that, technically, it was not a purchase, as it is not clear whether and how payment took place. The market, however, swiftly noted the potential inherent in this communication platform to link the producers of goods and services with customers willing to pay for them. The development of the internet as a marketplace has required secure payments and a safe way to transmit transaction data. In 1994, one

Phil Brandenberger purchased a Sting CD and paid for it by credit card via a data encryption program created by a small company called Net Market. ‘Attention Shoppers: Internet Is Open’, proclaimed *The New York Times*.⁴³

The idea of distance shopping is certainly not new; as early as the mid-19th century it was possible to peruse the offerings of various mail-order stores by selecting individual goods from catalogues delivered by post. However, the internet has thrown open access to myriad non-local goods, previously beyond the reach of consumers. Search engines have made it possible to compare individual versions of various products and to optimise their delivery.⁴⁴ The next step in this revolution was then the creation and expansion of e-commerce platforms, which greatly facilitated the searches through intelligent matching and recommendation algorithms. They also provided the mechanisms of curation between sellers and buyers, as well as online payment solutions. In 2017 one quarter of the global population – circa 1.3 billion people – regularly shopped online.⁴⁵ Six in ten of the EU citizens shopped online, and among young internet users (16–24 years), the proportion was considerably higher, standing at 78%.⁴⁶ For the US citizen the proportion stood at 69%.⁴⁷ The number of online shoppers in China has been increasing rapidly from below 34 million in 2006 to over 638 million users in 2019.⁴⁸

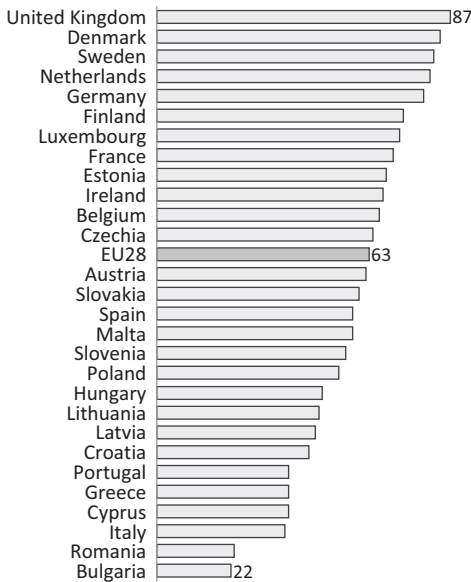


Figure 5.5 Percentage of individuals who purchased online within last 12 months (in %, 2019).

Source: Own work based on Eurostat data [isoc_ec_ibuy].

Overall, in 2019 the value of global business-to-consumer e-commerce has hit a whopping \$3.46 trillion.⁴⁹ And it is no wonder: online shopping offers unprecedented access to, and diversity of, goods, combined with convenience and time savings. The possibilities of buying online have particularly enticed people who previously treated shopping purely as an instrument, without enjoying it, but who at the same time appreciated a sense of freedom and control.⁵⁰ In 2017, the *Global Online Consumer Report* prepared by KPMG International found that consumers' motives for online shopping included the ability to shop around the clock (mentioned by 58% of respondents), to compare prices (54%), to find lower prices (46%), save time (40%), avoid going to a store (39%), and enjoy more choice (29%).⁵¹ Improvements in logistics seem to be keeping up with customer expectations when it comes to the timely and convenient distribution of ordered goods: Eurostat research in 2019 showed that only 7% of consumers shy away from buying online because of delivery issues.⁵²

Online shopping has been one of the most important and visible aspects of the internet revolution. Bricks-and-mortar shopping still has something important to offer, though. A visit to a high-street store can be an intense sensory experience: stores that sell luxury goods are especially aware of this, offering their customers designer décor, complemented by a specially designed bouquet of air-wafted aromas. Indeed, ordinary supermarkets are also wont to spray the scent of gingerbread in the run-up to Christmas. Tellingly, those who prefer to shop in person do so because they want to see and touch things, and try them on, or else because they are loyal to their local emporia.⁵³ For most people, shopping is inherently social – to go shopping

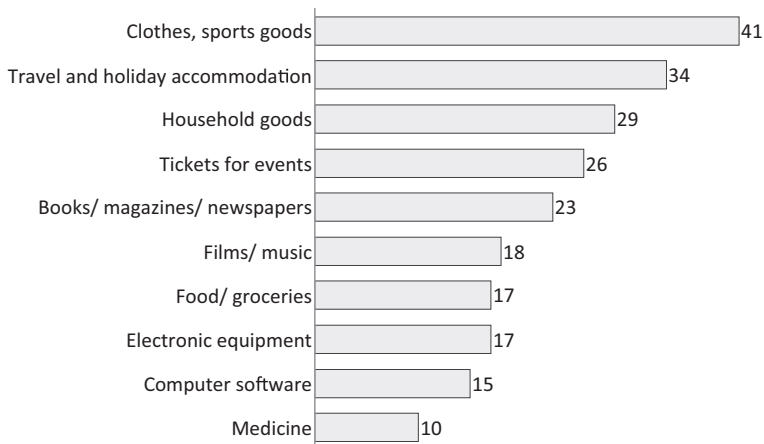


Figure 5.6 Percentage of EU28 individuals who purchased online certain goods (2019). Source: Own work based on Eurostat data [isoc_ec_ibuy].

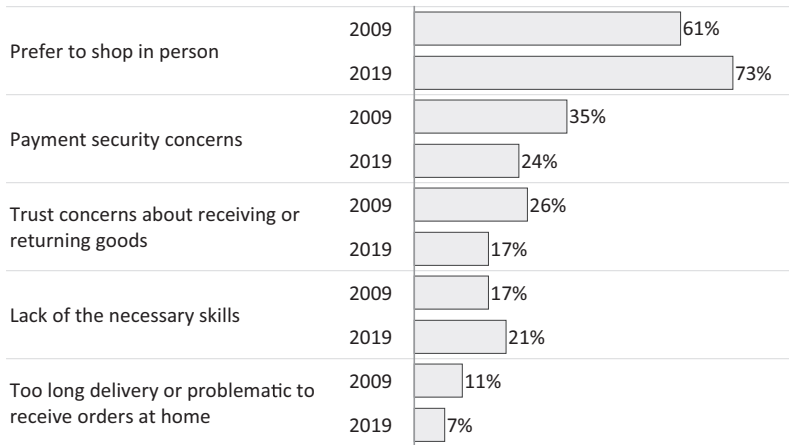


Figure 5.7 Barriers to buying online (% of individuals who ordered over the internet more than a year ago or who never did, EU28, 2009, 2019).

Source: Own work based on Eurostat data [isoc_ec_inb].

is to engage with other people. For this reason, online retailers have tried to re-create some of the social flavour of shopping, by encouraging their more garrulous consumers to engage in ‘collaborative online shopping’. Despite being physically apart, their customers can look at the same webpages and exchange opinions.⁵⁴

The new technologies of datafication has changed retailing in yet another way: by allowing the emergence of what some call ‘Bricks-and-Clicks’, but what in the world of marketing is better known as **omnichannel shopping**. This melds offline and online aspects of retailing. Customers can try out products in a shop but buy them online; they can search for information online, but buy an item in a nearby shop. The development of virtual reality technology has brought with it the promise of an ever-improving visual experience, and perhaps – in the not-too-distant future – odours and tastes. Buying via virtual reality is already being offered. To tempt customers into trying this new manner of shopping, the China’s Alibaba made available 150,000 VR glasses, priced at just 15 cents, together with an app that lets consumers buy with just a gesture through its Buy+ platform.⁵⁵

The next step in merging online and offline worlds into a physical-digital reality – ‘**phygital**’, as the marketing world calls it – can be glimpsed in seamless biometric payments, self check-out stores, and more impressively – in fully automatic physical stores such as Amazon Go.⁵⁶ Sensors located in the store, built into products and shopping baskets, covertly collect data on customer behaviour and integrate it with other behavioural data gleaned from digital traces left by customers on the web.

In reality, there is nothing technological about the customer experience at Amazon's checkout-free supermarket. You go in, take what you need from the shelves, fill your basket and leave. All the shop's electronic equipment – sensors, cameras, and of course computers – is hidden behind the scenes, out of customers' view. From their perspective the shopping experience is no more 'digital' than buying a lemon on a Friday evening from your local grocer's.⁵⁷

Digital technologies have brought about a sea change in the way we purchase material goods. Even more significantly, the emergence of networked distribution channels has revolutionised the consumption of information goods, allowing for the virtual consumption of dematerialised objects in virtual worlds. Indeed, two-thirds of international e-commerce is now made up of services and non-physical goods.

Platformisation of consumption

For better or worse, consumption in the digital economy is increasingly mediated by platforms. 72% of EU citizens have bought something online at least once, and 76% watch videos, live-stream or listen to music.⁵⁸ The emergence of platforms using data and network effects to better organise the multisided markets has revolutionised online shopping. It has made it easier for sellers of goods and

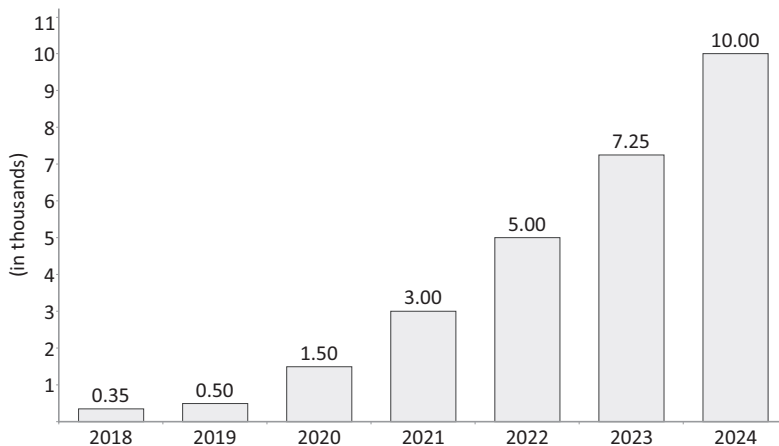


Figure 5.8 Number of stores which offer autonomous checkouts (in thousands, worldwide, 2018–2024).

Source: Own work based on Business Insider. 2019. *Number of stores which offer autonomous checkouts worldwide from 2018 to 2024**. Chart. In Statista. www.statista.com/statistics/1033836/number-of-stores-with-autonomous-checkouts-worldwide/ (accessed 20 January 2021).

services, buyers, and advertisers, to find each other. It has also increased the array of available products to an unbelievable degree. Amazon sells 12 million products, not including books, media, wine, and services; if you add the 185,000 Amazon Marketplace sellers, there are more than 353 million items to choose from.⁵⁹ In the EU, one million businesses sell their products through online platforms. Even local online retail platforms offer incredible choice: 100,000 sellers piggyback on the Polish platform Allegro, trading 30 million items per month.⁶⁰ Sure, you cannot download a hamburger, as the eminent sociologist of consumption George Ritzer once argued,⁶¹ but you can use a platform-based app such as Glovo and have it delivered to you with a flick of a finger.

The role of platforms is even more important in the case of digital information goods. Platforms provide access for consumers looking for content, creating near-Borgesian libraries of books, movies and music. There are over 6 million e-books available on Amazon's Kindle.⁶² Spotify has more than 50 million songs and 700,000 podcasts.⁶³ Quite a large bit of this cultural production exists because platforms have empowered amateur or low-budget creators (of variable talent) to reach an audience without being hampered by gatekeepers in the form of publishing houses or music producers. This bewildering cornucopia of cultural production can make it hard for people to find online content that they know they will enjoy. There is less 'adult curation' – a grand phrase for the content sifting and quality control traditionally performed by publishers. But platforms are good at solving also this conundrum. Thanks to advanced abilities in mining data left by users and tapping into the potential of artificial intelligence, platforms are able to facilitate and personalise the process of reaching content.⁶⁴ And due to exponential growth in the number of data points relating to each and every consumer's preferences, which bolster the predictive power of intelligent algorithms, they are getting better and better at this. In 2019, 167 million Netflix subscribers watched its library of 13,900 titles (with an average of 5,000 titles per country) for an average of 3.2 hours a day. The platform collected a profusion of data on how viewers interacted with content: not only on how they rated a programme, but also on binge watching patterns, and on whether they gave up on a show, or watched it more than once. As a result, approximately 80% of subscribers followed the algorithm's recommendations as to what to watch next.⁶⁵ Platforms are now performing **curation through personalisation**.

Personalisation is particularly effective when a platform is able to integrate data points from many sources, gaining insights into many areas of consumer practices and behaviour, and all the while feeding the AI algorithms. In this respect, China's platform ecosystem is second to none, as pointed out by Kai Fu Lee in *AI Superpowers* (2019).

WeChat users began sending text and voice messages to friends, paying for groceries, booking doctors' appointments, filing taxes, unlocking shared bikes, and buying plane tickets, all without ever leaving the app. WeChat became the universal social app, one in which different types of group

chats – formed with coworkers and friends or around interests – were used to negotiate business deals, organise birthday parties, or discuss modern art. It brought together a grab-bag of essential functions that are scattered across a dozen apps in the United States and elsewhere. China's alternate digital universe now creates and captures oceans of new data about the real world. That wealth of information on users – their location every second of the day, how they commute, what foods they like, when and where they buy groceries and beer – will prove invaluable in the era of AI implementation. It gives these companies a detailed treasure trove of these users' daily habits, one that can be combined with deep learning algorithms to offer tailor-made services ranging from financial auditing to city planning. It also vastly outstrips what Silicon Valley's leading companies can decipher from your searches, 'likes', or occasional online purchases.⁶⁶

Obviously, it breeds a whole range of risks concerning the privacy of users. In 2020 Tencent, the WeChat owner, has introduced a credit scoring system, which takes into account the record of purchases performed through the app, credit records and verified personal information.⁶⁷ It also draws information about the social connections of the user, which means that his or her score may be affected by the scores of friends, and vice versa. Five years earlier, a similar credit scoring system and loyalty program was developed by Ant Financial, an affiliate company of Alibaba. Zhima Credit, better known as Sesame Credit is based on payment records, tax payment history, and social media interactions. Users with higher scores are deemed trustworthy and can use many perks, such as 'use now, pay later services' or rent a car without advanced payment. Both companies closely cooperate with Chinese authorities who aim at building a nationwide system of Social Credit in order to assess the trustworthiness of individuals, companies and government officials.⁶⁸

This may sound ominous, but the digital profiling and the curation and recommendation mechanisms used by the Western platforms can also impact consumption capabilities of individual consumers. Algorithms may, for example, discriminate against users on the basis of their age, gender, and ethnicity. One of the first studies into racial discrimination on platforms found that African Americans who used the Prosper lending marketplace were more likely than other Americans to be denied a loan or asked to pay more in interest.⁶⁹ Many platforms – take Airbnb or Uber – operate with a mechanism based on a mutual recommendation system from both the buyer and the seller. Over time users develop a kind of personal brand to mark them as people who are deemed to be trustworthy. The building blocks of these brands are profiles on social media and comments, i.e., feedback from a multitude of one-time interactions. Such an aggregated and visible transactional history becomes an element of one's personal 'reputation capital', which can affect real-life interactions – for example, the lack of LinkedIn account may lose you a job.

The WeChat example illustrates yet another important aspect of platformisation of consumption: the **digital payment revolution**.

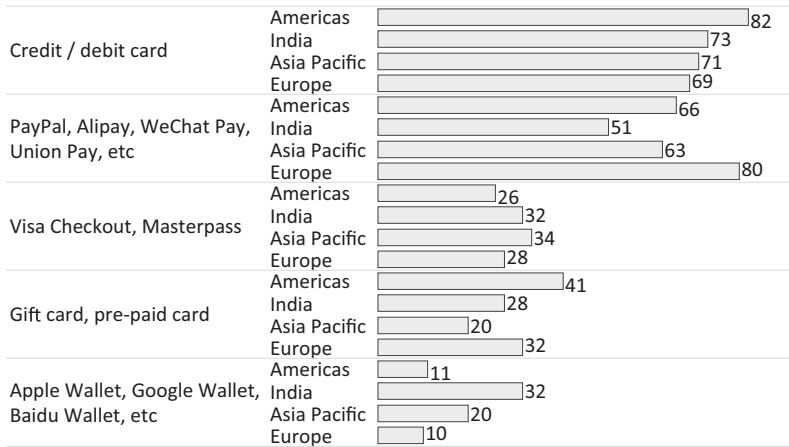


Figure 5.9 Most popular payment methods of online shoppers in selected regions (in %, 2019).

Source: Own work based on UPS. 2019. *Most popular payment methods of online shoppers in selected regions as January 2019*. Chart. In Statista. www.statista.com/statistics/676385/preferred-payment-methods-of-online-shoppers-worldwide-by-region/ (accessed 21 January 2021).

Development of mechanisms of secure online payments has been essential in the growth of e-commerce. A safe escrow service helped jump-start Alibaba, the largest retailer in the world. But the real breakthrough came with the widespread adoption of mobile devices, particularly smartphones. Applications known as digital wallets enabled sourcing payment credentials from the bank account, a credit card, or another digital wallet in order to pay for the purchases either online or in the physical shop. In less than a decade, there emerged an alternative payment ecosystem that disintermediates bank from payment transactions: in 2019 90% of mobile transactions in China were carried out via WeChat Pay and Alipay (connected with Ant Financial of Alibaba Group).⁷⁰ Those solutions provided by platforms allowed for overcoming infrastructural barriers and leapfrogging through the credit or debit card stage: the seller does not need the chip and pin device or internet connection. The consumer scans the two-dimensional bar code (a QR code), often printed on a sheet of paper, and carries online payment through the app. Importantly, the applications allow for transferring funds between users – a function made popular by the Tencent brilliant idea of sending traditional red envelopes via application in 2014 – even on a global level.⁷¹ The digital payments are now embedded in many platforms, enabling both online and physical payment.

The convenience of embedded online payments facilitates rolling out of new business models such as ‘pay-per-use’ (also called metered services) or **subscription** (flat rate of payment for unlimited access to content for a specified

time). To illustrate the first model, Apple's iTunes allows users to sample files but makes them pay for downloading a file. Many streaming platforms employ a **freemium model**: users may use the free content bundled with advertising or else pay for ad-free premium content.⁷² Take YouTube: initially, it was an open platform where you could watch uploaded videos in exchange for ogling some ads. For some time now, YouTube has allowed viewers to watch for free, but shown them tiresome ads and exhortations to fork out for a Premium subscription, which is not only ad-free but also enables offline watching and music to play in the background, while browsing other sites or reading. Platforms employ data on how goods and services are used to differentiate the way in which they charge for their offering, steering the consumers towards more **flexible model of consumption**, based on access instead of ownership.⁷³ As of 2019, 70% of American households, and 40% of British ones, had at least one video streaming subscription.⁷⁴ The conceptual shift from ownership to access underpins subscription-based business models that monetise the use of digital information goods.

Collaborative consumption

The platforms' ability to quickly and efficiently match people played a key role in the development of **collaborative consumption**, which consists of the simultaneous or sequential use of a given resource or good by many people. As with other concepts concerning new phenomena related to the digital economy, the definition of collaborative consumption is somewhat imprecise. In the literature on the subject (and even more often in journalism), collaborative consumption is often conflated with the **sharing economy**.⁷⁵

The rules governing the sharing of resources have long intrigued sociologists and economists. In 1968, the ecologist Garrett Hardin used the metaphor of the tragedy of the commons to show that uncontrolled, selfish consumption of a common resource leads to its destruction and backfires on individuals.⁷⁶ To prevent this from happening, people build up shared resources via a variety of institutions, the most important of which is trust, i.e., the belief that a co-user will not cheat us, and will not abuse the resource and exclude us from using it. The problem is that trust is relatively easy to maintain in small groups, where an egoistic behaviour can be easily identified and ostracised, but in larger groups, where individuals do not know each other and cannot effectively keep an eye on each other, there is a risk of freeloading. The development of capitalism was initially associated with the emergence of institutions that allowed sellers and buyers to hedge against the transactional risk associated with interacting with strangers with unproven reputations.⁷⁷ Still, social or economic sharing and exchange were limited to relatively close societal circles.

Platforms offer an infrastructure for engaging in collaborative consumption with total strangers outside those close circles. They not only enable quick and easy contact between the parties to a transaction (a person or company that has a given resource and a consumer who wants to use it); they also

significantly lower the risk of faulty transactions through the system of mutual recommendations and verified profiles of the users. If need arises, they curate the relations between the parties and provide the means of convenient and secure payments. This is what Blabla.car does for people having ‘idle resource’ of unused space in their car, and people looking for a cheaper and more convenient alternative to a bus or train. The ideal objects for collaborative consumption are digital information goods such as e-books that can be easily replicated and used by many people without losing its quality. But this calls into question the profitability of the publishing houses. The monetisation strategies described earlier in the chapter have effectively put an end to many cases of such collaboration, which were condemned as infringing on intellectual property rights. For instance, at the close of 2020 several scientific publishers waged a legal war in India against SciHub and LibGen, platforms that provide access to scientific articles and books respectively.⁷⁸ But the revolutionary impact of the platforms consisted of the possibility to share material goods with people outside one’s close circle of family and friends. Not all material goods can be shared equally easily, and not all people share equally willingly. Certain categories of goods are deemed too ‘private’, especially items related to personal hygiene (a toothbrush) or too closely related to one’s social or economic status (mobile phone or luxury watch).

At the turn of the first decade of the XXI century, the hopes were high for this idealistic version of the platform-enabled collaborative consumption. The adherents of collaborative consumption were convinced that, if it were ever to have widespread uptake, that might change attitudes towards personal property and, consequently, the role of possessions in shaping individuals’ identities. We may be entering an era of identity being based on the propensity to share, moving from thinking that ‘what we have defines us’ to realising that ‘what we share defines us’.⁷⁹ The desire to possess is being replaced by the desire to experience; consumers are increasingly guided by the principle of ‘it’s less treasure and more pleasure’.⁸⁰ Books optimistically titled *What’s Mine Is Yours: The Rise of Collaborative Consumption* (2010),⁸¹ *Sharing Is Good* (2013),⁸² *Peers Inc: How People and Platforms Are Inventing the Collaborative Economy and Reinventing Capitalism* (2015), painted a vision of tamed consumerism and new social and economic relations based on digitally-verified trust. Rachel Botsman and Roo Rogers argue that the main motivation for indulging in collaborative consumption is a desire to keep in touch with other people and to protect the environment. Beth Buczyński, in turn, focuses on ecological justifications for collaborative consumption: wild consumerism has led to the destruction of natural resources, which may bring about extremely destructive consequences. Robin Chase, founder of Zipcar, a ridesharing platform, and author of *Peers Inc.* argues that sharing physical resources will satisfy the needs of many people without the ecological burden, ensuring ‘abundance in a world of scarcity’.⁸³

This over-optimistic narrative was soon counterbalanced by more empirically-grounded analysis showing that people involve in collaborative consumption for

several reasons, aside from the normative ones focused on the environment.⁸⁴ Instrumental motives come from calculating one's own interests and from a desire to attain economic benefits. In simpler words, people participate in collaborative consumption when they feel that it pays off for them.⁸⁵ The goods that are most often shared are those that are not used very often (e.g., a drill), only during a certain period of life (e.g., a cradle), for special occasions (e.g., a tuxedo), and at the same time are expensive enough for them to be worth renting or sharing.⁸⁶ Many researchers and journalists also agree with the critical argument put forward in *Share or Die: Voices of the Get Lost Generation in the Age of Crisis* (2012), where the authors aver that sharing and exchanging resources is simply a matter of necessity stemming from the economic crisis.⁸⁷ Perhaps Millennials currently engaged in collaborative consumption will simply grow out of it and return to the earlier model of ownership-based consumption as soon as they can afford it: apparently, there comes a moment in your life when you want to buy a car instead of using Uber, and you ditch Spotify to buy pieces of vinyl.⁸⁸

More importantly, the allure of the positive notion of socially and ecologically responsible collaborative consumption/sharing economy was cunningly exploited by platforms in their own marketing purposes while their basic motivation was no different from that of traditional companies: the pursuit of profit.⁸⁹ The notion of sharing conveniently dismissed their responsibility towards the parties of transaction: Uber was not responsible for the drivers' wellbeing, it was only intermediating between them and the passengers. The academic community protested that Uber, Lyft, and suchlike companies are only providing on-demand services, without any real sharing. 'Stop saying Uber is part of the sharing economy', pleaded two researchers from Utrecht University, because 'what is being shared besides your money?'.⁹⁰ But despite these protests, the conceptual hijack performed by platforms proved effective – the notion of sharing economy came to represent platforms that in fact offer on-demand services or intermediate in professional renting.⁹¹

The price of personalisation

Predictably, the digital consumption has changed the consumers, their behaviour and the way they employ the abilities of their minds. 'Over the last few years I've had an uncomfortable sense that someone, or something, has been tinkering with my brain, remapping the neural circuitry, reprogramming the memory', claimed writer Nicolas Carr. He had identified the source of the problem pretty easily – it was the internet, which he was using more and more intensively at work. In *The Shallows: What the Internet Is Doing to Our Brains* (2011), Carr notes that the internet gives seemingly unlimited and almost instant access to the information we need, indisputably an amazing achievement of our civilisation and one which has considerably accelerated the process of acquiring, collecting, and verifying knowledge. However, this has come at a price: frequent use of the internet has accustomed people to searching quickly for information, but at the same time it has changed the intellectual habits that mankind learned with

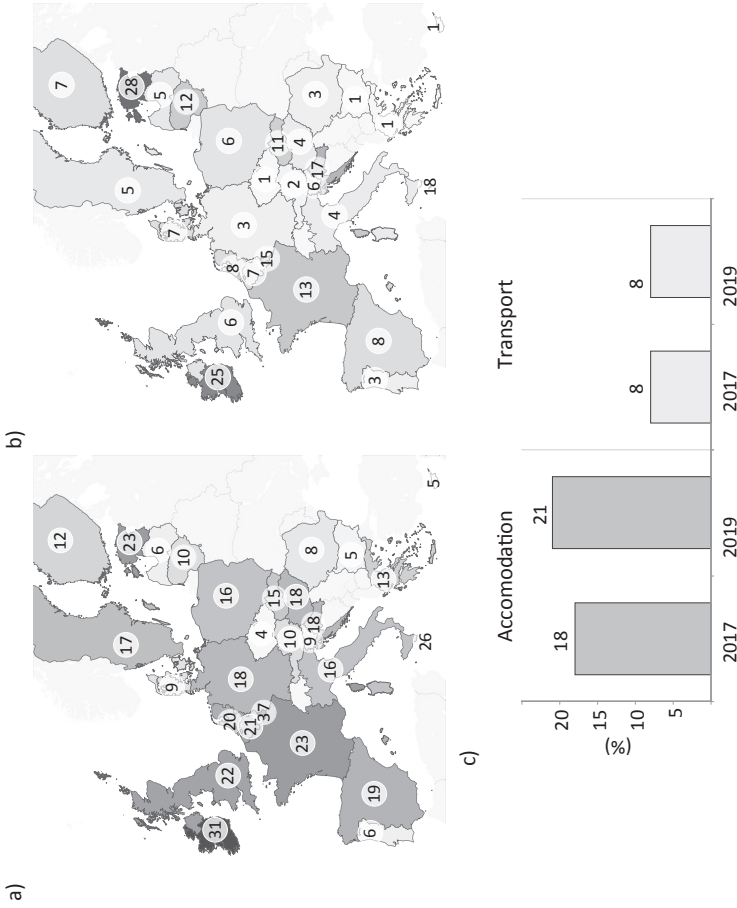


Figure 5.10 Percentage of (a) individuals who used any website or app to arrange an accommodation service from another individual (2019); (b) individuals who used any website or app to arrange a transport service from another individual (2019); (c) EU28 individuals who used any website or app to arrange a service from another individual (2017, 2019).

Source: Own work based on Eurostat data [isoc_ci_ce_i].

the advent of writing and developed thanks to the availability of the printed word. Scrolling through text on a computer screen (and now on a smartphone), constantly jumping from one link to another, has destroyed our ability to focus on longer text, resulting in chronic distraction. This even applies to bookworms like Carr: ‘Now my concentration starts to drift after a page or two. I get fidgety, lose the thread, begin looking for something else to do. I feel like I’m always dragging my wayward brain back to the text. The deep reading that used to come naturally has become a struggle.’⁹² It is worth remembering that, when Carr wrote this, the number of smartphone users was only just nearing a billion. Now it is almost 4 billion, and in developed countries penetration rates have reached 95% in South Korea, 75% in France, and 63% in Poland.⁹³

Worst of all, the way smartphone applications provide information and entertainment is – according to commentators such as Adam Alter in *Irresistible: The Rise of Addictive Technology and the Business of Keeping Us Hooked* (2017), and Jenny Odell in *How to Do Nothing: Resisting the Attention Economy* (2019) – geared towards nurturing behavioural addictions. Our brains are eternally looking for novelties. An average iPhone user checks their phone 80 times a day.⁹⁴ Android users are even more dependent on their devices than iOS users picking up or tapping them 110 times a day. For many people, their smartphone is the first thing they touch when they wake up and the last thing they caress before going to sleep.⁹⁵ A growing number of people experience mild nomophobia (‘no mobile phone phobia’), a feeling of an anxiety if they do not have their phone

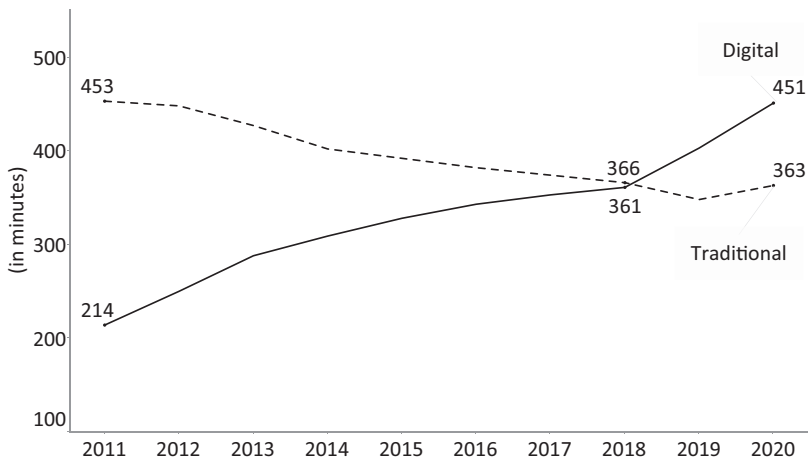


Figure 5.11 Time spent per day with digital versus traditional media (in minutes, USA, 2011–2020).

Source: Own work based on eMarketer. 2020. *Time spent per day with digital versus traditional media in the United States from 2011 to 2020 (in minutes)*. Chart. In Statista. www.statista.com/statistics/565628/time-spent-digital-traditional-media-usa/ (accessed 20 January 2021).

with them at all times.⁹⁶ We're always on, immersed in what has been dubbed the 'onlife' by Luciano Floridi from the Oxford Internet Institute.⁹⁷ It is small wonder then that marketing departments claim that digital consumers are easily distracted, and the academic world talks about attention being a scarce resource in a world of digital entertainment.⁹⁸

They are also used to variety and an abundance of choice, taking for granted instant access, convenience and seamless service.⁹⁹ But above all, they expect **personalisation**: goods and services, and even ads, tailored to their precise needs. Undoubtedly personalisation creates great value for consumers. For example, it makes it possible to adapt products and services to the needs of those social groups that have hitherto been 'invisible' because of a lack of data for designers and suppliers to mine.¹⁰⁰ Data collected from smart fitness bands, for instance, can not only help detect signs of an impending heart attack, but also record different patterns of heart attack in women and men.

Unfortunately, personalisation comes at a price.

And at the most basic level, that price is data. While surfing or using intelligent devices, be it in private or public, consumers constantly generate this data.¹⁰¹ In fact, consumers perform a kind of invisible, yet essential job: more or less willingly and knowingly, they become producers, in the sense that they produce data. Hence the notion of the prosumer. Producers crave consumers' behavioural data so that they can profile and predict their needs and expectations. Predictive profiling allows the consumer to be presented with a personalised offering. This possibility takes on particular importance because the digital consumer, surrounded by a cacophony of communication noise, is becoming more and more resistant to traditional communications and marketing channels.¹⁰² There is a heated discussion raging as to who owns this data and who should control its use: the individual or the company that collects it? Jathan Sadowski, author of *Too Smart: How Digital Capitalism is Extracting Data, Controlling Our Lives, and Taking Over the World* (2020), takes a radical position, arguing that 'common practices of data collection should be seen as theft and/or exploitation'.¹⁰³ And indeed, tech firms and platforms have at their disposal ever larger hoards of data on individual consumers (and whole groups of consumers), and these consumers have little control over who uses their data or which third parties have access to it. Even the most determined of tech users is unable to follow all the twists and turns the data take as they use their devices and applications.

But the price of personalisation is in fact higher than the ownership of data *per se*. Personalisation is contingent on predictive profiling, which may seriously harm privacy. In 2012, a US retailer sent a catalogue of maternity products to a Minnesota teenager because algorithms that had analysed her search and purchase history concluded she was pregnant. Unfortunately, her father consequently found out everything, and the whole story went on to spark a discussion about the scale of online consumer profiling and how it violates the right to privacy. In 2014, meanwhile, Janet Vertesi, a Princeton sociologist, tried to hide her pregnancy from profiling algorithms. She made some of her purchases via the TOR browser, which uses advanced cryptography to stop network traffic from being analysed. She quickly realised, however, that by doing so she could

find herself under the scrutiny of the intelligence services as a potential criminal.¹⁰⁴ Even more sobering effects of profiling were experienced by an editor at the *Washington Post*, who was bombarded with advertisements for prams and diapers after giving birth to a stillborn baby.¹⁰⁵ According to Shoshana Zuboff, the author of *The Age of Surveillance Capitalism*, we are currently dealing with the emergence of ‘surveillance capitalism’, a trend rooted in the use of vast behavioural data sets to extract value and covertly influence consumer choices by companies.¹⁰⁶ She dissects the benign vision of tech companies gathering data for the good of the consumer thus: ‘They want to know how we will behave in order to know how to best intervene in our behaviour.’¹⁰⁷

The Cambridge Analytics scandal has shed light on another danger of personalisation. To paraphrase a well-known saying: He who owns the data, calls the tune. Platforms, particularly those that trade in digital content, exercise considerable power over the selection of which content is shown or suggested to the consumer. On Netflix one trailer for a show will be shown to a white Canadian woman who liked ‘The 100’, while another version will be shown to a German teenager who previously watched Zac Efron travelling the world. Most people might find this acceptable. But you will also get profiled news feed on Facebook, locking you into an echo chamber hewn by a profiling algorithm. In an interview for the World Intellectual Property Organization Magazine, Sangeet Choudary noted that:

Platforms (...) began curating content and helping consumers find the books, films and music they wanted and to decide what was worth consuming through their recommendation systems. Because there are so many connected consumers and so many suppliers of creative content, the companies that create a platform to organise the content market occupy the most powerful position in the content market today. In effect, they determine what content is shown and to whom.¹⁰⁸

This personalisation mechanism is being honed to perfection by TikTok’s algorithm. The For You feed of viral videos is unique for each of its more than 2 billion users. The recommendation system is based on a combination of differently weighted factors such as user interaction (shared videos, followed accounts, created content and comments); video information (captions, sounds, and hashtags); and device and account settings (language, country, and device type). At the same time, the algorithm keeps diversifying recommendations and from time to time shows a video that ‘doesn’t appear to be relevant to your expressed interests’, but which opens up vistas to other kinds of popular content, creators and experiences.¹⁰⁹ By expanding personalisation mechanisms, platforms try to lock consumers into their choices: the content accessed, paid for, and conveniently personalised via one platform is not easily accessible from another platform. If you want to transfer your playlist from Spotify to Tidal you must use – and pay for – yet another app.

Admittedly, personalised recommendation is blooming when it comes to digital content. Even in this case, it is quite often still quite unsophisticated: many

of us get frustrated when after buying, say, trekking shoes via Allegro (the largest e-commerce platform in Poland, which will be probably swept away when Amazon finally enters our market) for the next few days you are shown never-ending procession of trekking boots while scrolling the net. But personalisation is still much less common in the case of material goods. The digital transformation in manufacturing – the Reconfigurable Manufacturing Systems, digital twins operating on the constant flow of data from intelligent products (see Chapter 3) – will soon bring yet another revolution in consumption.

Digital consumption is basically based on the cross-border flow of data, and online platforms facilitating, orchestrating and shaping its practices are usually global in their outlook and operation. In the next chapter, we will look closer at this intrinsically global character of the digital economy.

Key takeaways

- In the digital economy, consumption is increasingly channelled through connected **digital devices**.
- Digital consumption includes two new types of objects: **digital information goods**, such as e-books or streamed videos, and **intelligent products**, i.e., connected goods such as wearables, with software providing additional functionalities.
- Digital platforms play an increasingly important role in facilitating consumption: they act as gateways for digital information goods, they enable **online shopping** and **collaborative consumption**.
- Through novel tools for protecting their intellectual property rights such as streaming and DMR, as well as the growing **servitisation** of material goods, companies are steadily pushing to replace of the traditional ownership of things in favour of temporary access to their products, guarded by licenses and subscriptions.
- Digital consumption is shaped by the imperative of **personalisation**. Digital consumers expect products and services matched to their needs and expectations, delivered on the spot. Personalisation relies on **datafication** – the more data that is available on a consumer's practices, the more tailored the service. This, however, opens up questions concerning privacy and the ownership of the data.

Notes

- 1 European Commission. Digital Economy and Society Index (DESI) 2020. Poland. <https://ec.europa.eu/digital-single-market/en/scoreboard/poland> (accessed 25 January 2021).
- 2 Silver, L. 2019. Smartphone ownership is growing rapidly around the world, but not always equally. *Pew Research Center*. www.pewresearch.org/global/2019/02/05/smartphone-ownership-is-growing-rapidly-around-the-world-but-not-always-equally/ (accessed 25 January 2021).

- 3 Biblioteka Narodowa. *Stan Czytelnictwa W Polsce W 2019 Roku. Wstępne Wyniki*. www.bn.org.pl/download/document/1587585168.pdf (accessed 25 January 2021).
- 4 Wearables. *Statista*. www.statista.com/outlook/319/146/wearables/poland#market-revenue (accessed 25 January 2021).
- 5 Cochoy, F., Licoppe, C., Petersson McIntyre, M., and N. Sörum. 2020. Digitalizing consumer society: equipment and devices of digital consumption. *Journal of Cultural Economy* 13(1): 1–11. DOI: 10.1080/17530350.2019.1702576 (accessed 11 January 2021).
- 6 Waldfogel, J. 2018. *Digital Renaissance: What Data and Economics Tell Us about the Future of Popular Culture*. Princeton University Press.
- 7 Individuals – internet activities. *Eurostat*. https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_ci_ac_i&lang=en (accessed 25 January 2021); 2019. From Rideshare, music streaming, and food delivery: The global rise of digital goods and services. Regional and demographic trends driving global cross-border. Commerce. *Forrester*. www.firstdata.com/downloads/pdf/Cross-Border_Digital_Goods_Whitepaper.pdf (accessed 6 January 2021).
- 8 Ponelis, S. 2014. Information as economic good: Its origins, characteristics, pricing, and associated legal and ethical issues. In: *Approaches and Processes for Managing the Economics of Information Systems*. ed. Tsiakis, T., Kargidis, T., and P. Katsaros. IGI Global. www.igi-global.com/gateway/chapter/94275#pnlRecommendationForm (accessed 5 January 2021).
- 9 Hermon, A. 2020. CD Projekt Red: \$9 billion story. *Medium*. <https://medium.com/@h.avihay/cd-projekt-red-9-billion-story-c9b326f566a0> (accessed 25 January 2021).
- 10 McLaughlin, M. 2013. New GTA V release tipped to rake in £1bn in sales. *The Scotsman*. www.scotsman.com/whats-on/arts-and-entertainment/new-gta-v-release-tipped-rake-ps1bn-sales-2463312 (accessed 5 January 2021).
- 11 Belleflamme, P. 2016. The economics of digital goods: A progress report. *Review of Economic Research on Copyright Issues* 13(2): 1–24. www.serici.org/rerci_files/2016/belleflamme.pdf (accessed 5 January 2021).
- 12 2017. Cracking down on digital piracy. Report. www.fact-uk.org.uk/files/2017/09/Cracking-Down-on-Digital-Piracy-Report-Sept-2017.pdf (accessed 5 January 2021).
- 13 Kravets, D. 2010. Copyright lawsuits plummet in aftermath of RIAA Campaign. *Wired*. www.wired.com/2010/05/riaa-bump/ (accessed 25 January 2021).
- 14 Holpuch, A. 2012. Minnesota woman to pay \$220,000 fine for 24 illegally downloaded songs. *The Guardian*. www.theguardian.com/technology/2012/sep/11/minnesota-woman-songs-illegally-downloaded (accessed 5 January 2021).
- 15 Watkins, R. and J. Denegri-Knott. 2016. Do we own our digital possessions? *Journal of Marketing Management*. www.jmmnews.com/do-we-own-our-digital-possessions/ (accessed 5 January 2021).
- 16 Fox-Brexter, T. 2014. Londoners give up eldest children in public Wi-Fi security horror show. *The Guardian*. www.theguardian.com/technology/2014/sep/29/londoners-wi-fi-security-herod-clause (accessed 5 January 2021).
- 17 2020. What happens to my data and access when my Microsoft 365 for business subscription ends? *Microsoft*. <https://docs.microsoft.com/en-us/microsoft-365/commerce/subscriptions/what-if-my-subscription-expires?view=o365-worldwide> (accessed 5 January 2021).

- 18 Books in Microsoft Store: FAQ. *Microsoft*. <https://support.microsoft.com/en-us/account-billing/books-in-microsoft-store-faq-ff0b7b84-7052-4088-9262-d7e4ee22419c> (accessed 5 January 2021).
- 19 Watkins, R. and J. Denegri-Knott. 2016. Do we own our digital possessions? *Journal of Marketing Management*. www.jmmnews.com/do-we-own-our-digital-possessions/ (accessed 5 January 2021); Watkins, R., Denegri-Knott, J., and M. Molesworth. 2016. The relationship between ownership and possession: Observations from the context of digital virtual goods. *Journal of Marketing Management* 32(1–2): 44–70. <http://dx.doi.org/10.1080/0267257X.2015.1089308> (accessed 5 January 2021).
- 20 Hamari, J. and L. Keronen. 2017. Why do people buy virtual goods: A meta-analysis. *Computers in Human Behavior* 71: 59–69. www.researchgate.net/publication/312870311_Why_do_people_buy_virtual_goods_A_meta-analysis (accessed 5 January 2021); Hamari, J. 2015. Why do people buy virtual goods? Attitude toward virtual good purchases versus game enjoyment. *International Journal of Information Management* 35(3): 299–308. www.sciencedirect.com/science/article/pii/S0268401215000080 (accessed 5 January 2021).
- 21 Hamari, J. and V. Lehdonvirta. 2010. Game design as marketing: How game mechanics create demand for virtual goods. *International Journal of Business Science and Applied Management* 5(1): 15–29. www.business-and-management.org/library/2010/5_1--14-29-Hamari%2CLEhdonvirta.pdf (accessed 5 January 2021); Molesworth, M. and J., Denegri-Knott. Digital virtual consumption as transformative space .In: *The Routledge Companion to Digital Consumption* Routledge. ed. Belk, R.W. and R. Llamas. 2012. Routledge Handbook Online, pp. 223–234. www.routledgehandbooks.com/doi/10.4324/9780203105306.ch20 (accessed 5 January 2021); Lehdonvirta, V. 2010. Online spaces have material culture: Goodbye to digital post-materialism and hello to virtual consumption. *Media, Culture & Society* 32(5): 883–889. <http://journals.sagepub.com/doi/abs/10.1177/0163443710378559> (accessed 5 January 2021).
- 22 Gądek, J. 2020. Dobra cyfrowe w grach i ich wartość: skiny. *Tar Heel Capital*. <http://tarheelcap.com/dobra-cyfrowe-w-grach-i-ich-wartosc-skin/> (accessed 5 January 2021).
- 23 Stus, M. Kilka tysięcy dolarów za ‘topowe kosy’ w grze. ‘Dajemy możliwość wyrażenia siebie’. *Esportmania* <https://esportmania.pl/big-stories/handel-skorkami-w-cs-gona-czym-polega-skinwallet/jxcd3bg> (accessed 5 January 2021); Skinwallet. www.skinwallet.com/pl/ (accessed 25 January 2021).
- 24 2011. Directive 2011/83/Eu of the European Parliament and of the Council on Consumer Rights, Amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and Repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council. *Official Journal of the European Union*. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32011L0083> (accessed 5 January 2021).
- 25 2019. 11 smart shoes that are digitally connected. *Nanalyze*. www.nanalyze.com/2019/02/smart-shoes-digitally-connected/ (accessed 4 January 2021).
- 26 2019. 11 smart shoes that are digitally connected. *Nanalyze*. www.nanalyze.com/2019/02/smart-shoes-digitally-connected/ (accessed 4 January 2021).
- 27 Jonnalagadda, H. 2017. Xiaomi Mi smart shoes review: Obsessively track your workouts. *Android Central*. www.androidcentral.com/xiaomi-mi-smart-shoes-review (accessed 4 January 2021).

- 28 Green, D. 2018. Amazon could make a bracelet that tracks workers' movements and buzzes them if they move in the wrong direction. *Business Insider*. www.businessinsider.com/amazon-patents-bracelet-that-tracks-workers-2018-2?IR=T (accessed 5 January 2021).
- 29 Krejcar, O., Maresova, P., Selamat, A., et al. 2017. Smart furniture as a component of a smart city – definition based on key technologies specification. *IEEE Access*. [https://arh.human.cornell.edu/linked%20docs/Smart_Furniture_as_a_Component_of_a_Smart_City.pdf](https://arl.human.cornell.edu/linked%20docs/Smart_Furniture_as_a_Component_of_a_Smart_City.pdf) (accessed 5 January 2021).
- 30 Wiens, K. and E. Chamberlain. 2010. John Deere just swindled farmers out of their right to repair. *Wired*. www.wired.com/story/john-deere-farmers-right-to-repair/ (accessed 5 January 2021).
- 31 Gerlock, G. 2017. Farmers look for ways to circumvent tractor software locks. *NPR*. www.npr.org/sections/alltechconsidered/2017/04/09/523024776/farmers-look-for-ways-to-circumvent-tractor-software-locks?t=1610439650297 (accessed 12 January 2021).
- 32 Vandemerwe, S. and J. Rada. 1988. Servitization of business: Adding value by adding services. *European Management Journal* 6(4): 314–324. www.sciencedirect.com/science/article/pii/0263237388900333
- 33 Kowalkowski, C., Gebauer, H., Kamp, B., et al. 2017. Servitization and deservitization: Overview, concepts, and definitions. *Industrial Marketing Management* 60: 4–10. www.sciencedirect.com/science/article/pii/S0019850116303571 (accessed 5 January 2021).
- 34 Indoor exercising bike with online streaming classes. *Peloton*. www.onepeloton.com/bike (accessed 5 January 2021).
- 35 Stoll, J.D. 2020. Is Peloton a fitness fad or a tech company? Everything's riding on the answer. *The Wall Street Journal*. www.wsj.com/articles/is-peloton-a-fitness-fad-or-a-tech-company-everythings-riding-on-the-answer-11579273632; Murray, M.R. 2020. Peloton: Exercising strategic thinking for a new business model. *UVA Darden Ideas to Action*. <https://ideas.darden.virginia.edu/peloton-exercising-strategic-thinking> (accessed 5 January 2021); www.theatlantic.com/magazine/archive/2019/12/the-tribe-of-peloton/600748/ (accessed 4 January 2021).
- 36 Introducing Instagram Story Sharing. Share. Connect. Explore. *Peloton. The Output*. <https://blog.onepeloton.com/peloton-instagram-story-sharing/> (accessed 6 January 2021); www.onepeloton.com/ (accessed 25 January 2021).
- 37 Abad-Santos, A. 2020. The pandemic changed my mind about Peloton. *Vox*. www.vox.com/the-goods/21345534/peloton-bike-review-2020 (accessed 6 January 2021).
- 38 Kurutz, S. 2017. Peloton instructors ride for fitness and fame. *New York Times*. www.nytimes.com/2017/02/01/style/peloton-fitness-cycling-celebrity-instructors.html (accessed 6 January 2021).
- 39 Deakin, M. and H. Al Waer. 2011. From intelligent to smart cities. *Intelligent Buildings International* 3(3): 133–139. www.tandfonline.com/doi/pdf/10.1080/17508975.2011.586673?needAccess=true (accessed 6 January 2021); Albino, V., Berardi, U., and R.M. Dangelico. 2015. Smart cities: Definitions, dimensions, and performance. *Journal of Urban Technology* 22(1): 3–21. <https://pdfs.semanticscholar.org/656e/4fb0564d96407161d9e541a9ca15375d6c60.pdf> (accessed 6 January 2021); Trindade, E.P., Hinnig, M.P.F., da Costa, E.M. et al. 2017. Sustainable development of smart cities: A systematic review of the literature. *Journal of Open*

- Innovation: Technology, Market, and Complexity* 3(11). <https://doi.org/10.1186/s40852-017-0063-2> (accessed 6 January 2021).
- 40 Virtual Singapore. National Research Foundation. *Prime Minister's Office. Singapore*. www.nrf.gov.sg/programmes/virtual-singapore (accessed 6 January 2021).
- 41 Cherukuri, S. Amaravati smart city. Cityzenith's SmartWorldPro™ digital twin platform selected for new capital city in India. *City Zenith*. <https://cityzenith.com/customers/amaravati-smart-city><https://tomorrow.city/a/smarter-cities-are-born-with-digital-twins> (accessed 6 January 2021).
- 42 Markoff, J. 2006. *What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry*. Penguin Books.
- 43 Lewis, P.H. 1994. Attention shoppers: Internet is open. *New York Times*. www.nytimes.com/1994/08/12/business/attention-shoppers-internet-is-open.html (accessed 6 January 2021).
- 44 Lehdonvirta, V. A history of the digitalization of consumer culture: From Amazon through Pirate Bay to FarmVille. In: *Digital Virtual Consumption*. ed. Denegri-Knott, J. and M. Molesworth. Routledge. 2012, pp. 11–28. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2501350 (accessed 6 January 2021)
- 45 Global e-Commerce sales surged to \$29 trillion. 2019. *UNCTAD*. Geneva. <https://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=505> (accessed 12 January 2021).
- 46 Main reason for not buying online. *Eurostat*. Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php/E-commerce_statistics_for_individuals#Main_reason_for_not_buying_online (accessed 12 January 2021).
- 47 Nature of the Sample: NPR/Marist Poll Of 1,057 National Adults. http://maristpoll.marist.edu/wp-content/misc/usapolls/us180423_NPR/NPR_Marist%20Poll_Tables%20of%20Questions_May%202018.pdf#page=2 (accessed 25 January 2021).
- 48 CNNIC. 2020. Statistical report on internet development in China. <https://cnnic.com.cn/IDR/ReportDownloads/202012/P020201201530023411644.pdf> (accessed 25 January 2021).
- 49 Young, J. 2019. Global ecommerce sales to reach nearly \$3.46 trillion in 2019. *Digital Commerce*. www.digitalcommerce360.com/article/global-ecommerce-sales/ (accessed 12 January 2021).
- 50 Wolfenbarger, M. and M.C. Gilly. 2001. Shopping online for freedom, control, and fun. *California Management Review* 43(2): 34–55. <https://journals.sagepub.com/doi/10.2307/41166074> (accessed 6 January 2021).
- 51 KPMG International Cooperative. 2017. The truth about online consumers. <https://assets.kpmg/content/dam/kpmg/xx/pdf/2017/01/the-truth-about-online-consumers.pdf> (accessed 25 January 2021).
- 52 Main reason for not buying online. *Eurostat*. Statistics Explained. https://ec.europa.eu/eurostat/statistics-explained/index.php/E-commerce_statistics_for_individuals#Main_reason_for_not_buying_online (accessed 12 January 2021).
- 53 KPMG International Cooperative. 2017. The truth about online consumers. *2017 Global Online Consumer Report*. KPMG. <https://assets.kpmg/content/dam/kpmg/xx/pdf/2017/01/the-truth-about-online-consumers.pdf> (accessed 12 January 2021).
- 54 Hongki, K., Kil-Soo, S., and L. Un-Kon. 2013. Effects of collaborative online shopping on shopping experience through social and relational perspectives. *Information & Management* 50(4): 169–180. www.sciencedirect.com/science/article/pii/S0378720613000128 (accessed 6 January 2021).

- 55 Wang, H.H. 2016. From virtual reality to personalized experiences: Alibaba is bringing us the future of retail this singles day. *Forbes*. www.forbes.com/sites/helenwang/2016/11/06/how-alibaba-will-use-the-worlds-biggest-shopping-day-to-transform-retail/#5bd808e06d4e (accessed 6 January 2021).
- 56 www.konstruktdigital.com/marketing-strategy/phygital-marketing/
- 57 Sorensen, K. 2020. Phygital – the new marketing frontier. *Konstrukt Digital*. <https://serviceplan.blog/en/2019/02/as-technology-vanishes-black-magic-appears/> (accessed 6 January 2021).
- 58 2019. How do online platforms shape our lives and businesses? Brochure. European Commission. <https://ec.europa.eu/digital-single-market/en/news/how-do-online-platforms-shape-our-lives-and-businesses-brochure> (accessed 6 January 2021).
- 59 How many products does Amazon Carry? *Retail Touchpoints*. <https://retailtouchpoints.com/resources/how-many-products-does-amazon-carry> (accessed 6 January 2021).
- 60 Dla kupujących. *Allegro*. <https://dlakupujacych.allegro.pl/wygodne-zakupy/najwiekszy-wybor> (accessed 25 January 2021).
- 61 Ritzer, G. 2018. *The McDonaldization of Society. Into the Digital Age*. Ninth Edition. International Student Edition. University of Maryland.
- 62 Haines, D. 2020. There are now over 6 million Kindle ebooks on Amazon. *Just Publishing Advice*. <https://justpublishingadvice.com/there-are-now-over-5-million-kindle-ebooks/> (accessed 6 January 2021)
- 63 Iqbal, M. 2020. Spotify usage and revenue statistics (2020). *Business of Apps*. www.businessofapps.com/data/spotify-statistics/ (accessed 6 January 2020).
- 64 Bolter, J.D. 2018. *The Digital Plenitude: The Decline of Elite Culture and the Rise of New Media*. 1st Edition. MIT Press; Waldfogel, J. 2018. *Digital Renaissance: What Data and Economics Tell Us about the Future of Popular Culture*. Princeton University Press.
- 65 Cook, S. 2020. 50+ Netflix statistics & facts that define the company's dominance in 2021. *Comparitech*. www.comparitech.com/blog/vpn-privacy/netflix-statistics-facts-figures/ (accessed 6 January 2021)
- 66 Lee, K-F. 2018. *AI Superpowers: China, Silicon Valley, and the New World Order*. Houghton Mifflin Harcourt.
- 67 Yue, H. and G. Yingzhe. 2020. Tencent launches credit scoring system based on WeChat purchases. *CX Tech*. www.caixinglobal.com/2020-06-08/tencent-launches-credit-scoring-system-based-on-wechat-purchases-101564336.html (accessed 6 January 2021).
- 68 Matsakis, L. 2019. How the West got China's social credit system wrong. *Wired*. www.wired.com/story/china-social-credit-score-system/ (accessed 6 January 2021).
- 69 Pope, D.G. and J.R. Sydnor. What's in a picture? Evidence of discrimination from Prosper.com. *Journal of Human Resources* 46(1): 53–92. https://faculty.chicagobooth.edu/devin.pope/assets/files/Website_Prospers.pdf (accessed 6 January 2021); Ye, T., Alahmad, R., Pierce, C., et al. 2017. Race and rating on sharing economy platforms: The effect of race similarity and reputation on trust and booking intention in Airbnb. Conference: *Proceedings of the 38th International Conference on Information Systems (ICIS 2017)*. Korea. Seoul. www.researchgate.net/publication/319957147_Race_and_Rating_on_Sharing_Economy_Platforms_The_Effect_of_Race_Similarity_and_Reputation_on_Trust_and_Booking_Intention_in_Airbnb (accessed 6 January 2021); Edelman, B., Luca, M., and D. Svirsky. Racial discrimination in the sharing economy: Evidence from a field experiment. *Harvard Business*

- School. Working Paper 16-069. www.hbs.edu/faculty/Publication%20Files/16-069_5c3b2b36-d9f8-4b38-9639-2175aaf9ebc9.pdf. (accessed 6 January 2021).
- 70 2019. China: A digital payments revolution. CGAP. www.cgap.org/research/publication/china-digital-payments-revolution (accessed 25 January 2021); Klein, A. 2020. China's digital payments revolution. *Brookings*. www.brookings.edu/research/chinas-digital-payments-revolution/ (accessed 6 January 2021). See also: Bu, L., Wang, J., Wang, K.W. et al. 2019. China digital consumer trends 2019. Discovering the next wave of growth. *McKinsey Digital*. www.mckinsey.com/~media/mckinsey/featured%20insights/china/china%20digital%20consumer%20trends%20in%202019/china-digital-consumer-trends-in-2019.ashx (accessed 6 January 2021);
- 71 Chao, E. 2017. How WeChat became China's app for everything. *Fast Company*. www.fastcompany.com/3065255/china-wechat-tencent-red-envelopes-and-social-money (accessed 6 January 2021).
- 72 Belleflamme, P. 2016. The economics of digital goods: A progress report. *Review of Economic Research on Copyright Issues* 13(2): 1–24. www.serci.org/terci_files/2016/belleflamme.pdf (accessed 5 January 2021).
- 73 XaaS Models: Our Offerings. Making the shift to everything-as-a-service. *Deloitte*. www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/flashpoint-flexible-consumption-technology-platforms-cloud.html (accessed 6 January 2021).
- 74 Fitzgerald, T. 2019. How many streaming video services does the average person subscribe to? *Forbes*. www.forbes.com/sites/tonifitzgerald/2019/03/29/how-many-streaming-video-services-does-the-average-person-subscribe-to/?sh=58a3c0746301 (accessed 6 January 2021).
- 75 Hamari, J., Sjöklint, M., and A. Ukkonen. 2016. The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology* 67(9): 2047–2059. <https://onlinelibrary.wiley.com/doi/full/10.1002/asi.23552> (accessed 6 January 2021).
- 76 Hardin, G. 1968. The tragedy of the commons. *Science* 162(3859): 1243–1248. <https://science.sciencemag.org/content/162/3859/1243.full> (accessed 6 January 2021).
- 77 Fukuyama, F. 1996. *Trust. The Social Virtues and the Creation of Prosperity*. Free Press.
- 78 Scaria, A.G. 2020. Sci-Hub Case: The court should protect science from greedy academic publishers. *The Wire*. <https://thewire.in/law/sci-hub-elsevier-delhi-high-court-access-medical-literature-scientific-publishing-access-inequity> (accessed 6 January 2021).
- 79 Belk, R. 2014. You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*. www.researchgate.net/publication/262490610_You_are_what_you_can_access_Sharing_and_collaborative_consumption_online (accessed 6 January 2021).
- 80 Lawson, S. Transumers: Motivations of non-ownership consumption. In: *NA – Advances in Consumer Research no. 37*. ed. Campbell, M.C., Inman, J., and R. Pieters. 2010. Association for Consumer Research. pp. 842–853. www.acrwebsite.org/volumes/15449/volumes/v37/NA-37 (accessed 6 January 2021).
- 81 Botsman, R. and R. Rogers. 2011. *What's Mine Is Yours: The Rise of Collaborative Consumption*. Collins.
- 82 Buczynski, B. 2013. *Sharing is Good: How to Save Money, Time and Resources through Collaborative Consumption*. New Society Publishers.

- 83 Chase, R. 2015. *Peers Inc: How People and Platforms Are Inventing the Collaborative Economy and Reinventing Capitalism*. PublicAffairs.
- 84 Andreotti, A. Anselmi, G., Einhorn, T. et al. 2017. Participation in the sharing economy. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2961745. (accessed 6 January 2021). Hamari, J., Sjöklint, M., and A. Ukkonen. 2016. The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology* 67(9): 2047–2059. <https://onlinelibrary.wiley.com/doi/full/10.1002/asi.23552> (accessed 6 January 2021), pp. 2047–2059; Hellwig, K., Morhart, F., Girardin, F., et al. 2015. Exploring different types of sharing: A proposed segmentation of the market for ‘sharing’ businesses’. *Psychology & Marketing* 32(9): 891–906. <https://onlinelibrary.wiley.com/doi/full/10.1002/mar.20825> (accessed 6 January 2020).
- 85 Gansky, L. 2010. *The Mesh: Why the Future of Business Is Sharing*. Portfolio/Penguin.
- 86 2016. The new consumerism: The reach of the sharing economy. *Euromonitor*. <http://blog.euromonitor.com/2016/04/the-new-consumerism-the-reach-of-the-sharing-economy.html> (accessed 6 January 2021).
- 87 Harris, M., Gorenflo, N., and C., Doctorow. 2012. *Share or Die: Voices of the Get Lost Generation in the Age of Crisis*. New Society Publishers.
- 88 Winograd, M. and M.D. Hais. 2011. *Millennial Momentum: How a New Generation Is Remaking America*. Rutgers University Press.
- 89 Jemielniak, D. and A. Przegalińska. *Collaborative Society*. MIT Press; Cockayne, D.G. 2016. Sharing and neoliberal discourse: The economic function of sharing in the digital on-demand economy. *Geoforum* 77: 73–82.
- 90 Meelen, T. and K. Frenken. 2015. Stop saying Uber is part of the sharing economy. *Fast Company*. www.fastcompany.com/3040863/stop-saying-uber-is-part-of-the-sharing-economy (accessed 6 January 2021).
- 91 Frenken, K. and J. Schor. 2017. Putting the sharing economy into perspective. *Environmental Innovation and Societal Transitions* 23: 3–10 <https://doi.org/10.1016/j.eist.2017.01.003> (accessed 12 January 2021).
- 92 Carr, N. 2011. *The Shallows: What the Internet Is Doing to Our Brains*. W.W. Norton & Company.
- 93 Silver, L. 2019. Smartphone ownership is growing rapidly around the world, but not always equally. *Pew Research Center*. www.pewresearch.org/global/2019/02/05/smartphone-ownership-is-growing-rapidly-around-the-world-but-not-always-equally/ (accessed 6 January 2021)
- 94 Leswing, K. 2016. The average iPhone is unlocked 80 times per day. *Business Insider*. www.businessinsider.com/the-average-iphone-is-unlocked-80-times-per-day-2016-4?IR=T (accessed 5 January 2021).
- 95 Winnick, M. 2016. Putting a Finger on Our Phone Obsession. Mobile touches: a study on how humans use technology, *Blog Dscout*. <https://blog.dscout.com/mobile-touches> (accessed 5 January 2021); Scally, D. 2017. Child smartphone addiction growing, says German drug agency. *The Irish Times*. www.irishtimes.com/news/world/europe/child-smartphone-addiction-growing-says-german-drug-agency-1.3101529 (accessed 5 January 2021); 2017. Cell phone addiction: The statistics of gadget dependency. *King University Online*. <https://online.king.edu/news/cell-phone-addiction/> (accessed 5 January 2021).
- 96 Prasad, M., Patthi, B., Singla, A., et al. 2017. Nomophobia: A cross-sectional study to assess mobile phone usage among dental students. *Journal of Clinical &*

- Diagnostic Research.* www.ncbi.nlm.nih.gov/pmc/articles/PMC5376814/ (accessed 5 January 2021).
- 97 Floridi, L. 2014. *The fourth revolution: How the infosphere is reshaping human reality.* Oxford University Press. Cited in: *The Onlife Manifesto: Being Human in a Hyperconnected Era.* ed. L. Floridi. 2015. Springer.
- 98 Kane, L. 2019. *The attention economy.* Nielsen Norman Group. www.nngroup.com/articles/attention-economy/ (accessed 6 January 2021); Franck, G. 2018. *The economy of attention.* *Journal of Sociology.* <https://journals.sagepub.com/doi/full/10.1177/1440783318811778> (accessed 6 January 2021).
- 99 Hoffman, D.L., Novak, T.P., and R. Stein. 2012. *The digital consumer.* In: *The Routledge Companion to Digital Consumption* Routledge. ed. Belk, R.W. and R. Llamas. Routledge Handbook Online, pp. 28–38. www.routledgehandbooks.com/doi/10.4324/9780203105306.ch3 (accessed 6 January 2021).
- 100 Perez, C.C. 2019. *Invisible Women. Data Bias in a World Designed for Men.* Abrams Press.
- 101 Siegel, E. 2016. *Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die.* Wiley.
- 102 Boudet, J., Gregg, B., Wong, J., et al. 2017. *What shoppers really want from personalized marketing.* McKinsey & Company. www.mckinsey.com/business-functions/marketing-and-sales/our-insights/what-shoppers-really-want-from-personalized-marketing (accessed 6 January 2020); Davenport, T.H. and J.C. Beck. 2001. *The Attention Economy: Understanding the New Currency of Business.* Harvard Business School Press; Franck, G. 2018. *The economy of attention.* *Journal of Sociology.* <https://journals.sagepub.com/doi/full/10.1177/1440783318811778> (accessed 6 January 2021).
- 103 Sadowski, J. 2020. *Too Smart: How Digital Capitalism is Extracting Data, Controlling Our Lives, and Taking Over the World.* The MIT Press.
- 104 Vertesi, J. 2014. *My experiment opting out of Big Data made me look like a criminal.* *Time.* <http://time.com/83200/privacy-internet-big-data-opt-out/> (accessed 6 January 2021).
- 105 Temperton, J. 2019. *I tried to keep my unborn child secret from Facebook and Google.* *Wired.* www.wired.co.uk/article/the-internet-hates-secrets (accessed 6 January 2021).
- 106 Zuboff, S. 2019. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power.* Profile Books.
- 107 Kavenna, J. 2019. *Shoshana Zuboff: ‘Surveillance capitalism is an assault on human autonomy’.* *The Guardian.* www.theguardian.com/books/2019/oct/04/shoshana-zuboff-surveillance-capitalism-assault-human-autonomy-digital-privacy (accessed 6 January 2021).
- 108 Jewell, C. 2018. *Creative industries in the platform economy.* *WIPO Magazine.* www.wipo.int/wipo_magazine/en/2018/06/article_0001.html (accessed 6 January 2021).
- 109 *How TikTok recommends videos #ForYou.* *TikTok.* <https://newsroom.tiktok.com/en-us/how-tiktok-recommends-videos-for-you> (accessed 6 January 2021).

Bibliography

- Abad-Santos, A. *The pandemic changed my mind about Peloton.* *Vox.* 2020. www.vox.com/the-goods/21345534/peloton-bike-review-2020
- Albino, V., Berardi, U., and Dangelico, R.M. *Smart cities: Definitions, dimensions, and performance.* *Journal of Urban Technology* 22(1). 2015. <https://pdfs.semanticscholar.org/656e/4fb0564d96407161d9e541a9ca15375d6c60.pdf>

- Allegro. Dla kupujących. <https://dlakupujacych.allegro.pl/wygodne-zakupy/najwiekszy-wybor>
- Andreotti, A., Anselmi, G., Einhorn, T., Hoffmann, C.P. and Micheli, M. Participation in the sharing economy. SSRN. 2017. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2961745
- Belleflamme, P. The economics of digital goods: A progress report. *Review of Economic Research on Copyright Issues* 13(2). 2016. www.serci.org/rerci_files/2016/belleflamme.pdf
- Biblioteka Narodowa. *Stan Czynelnictwa W Polsce W 2019 Roku. Wstępne Wyniki*. www.bn.org.pl/download/document/1587585168.pdf
- Bolter, J.D. *The Digital Plenitude: The Decline of Elite Culture and the Rise of New Media*. 1st Edition. MIT Press. 2018.
- Botsman, R. and Rogers, R. *What's Mine Is Yours: The Rise of Collaborative Consumption*. Collins. 2011.
- Boudet, J., Gregg, B., Wong, J., and Schuler, G. What shoppers really want from personalised marketing. *McKinsey & Company*. 2017. www.mckinsey.com/business-functions/marketing-and-sales/our-insights/what-shoppers-really-want-from-personalized-marketing
- Bu, L., Wang, J., Wang, K.W., and Zipser, D. China digital consumer trends 2019. Discovering the next wave of growth. *McKinsey Digital*. 2019. www.mckinsey.com/~media/mckinsey/featured%20insights/china/china%20digital%20consumer%20trends%20in%202019/china-digital-consumer-trends-in-2019.ashx
- Buczynski, B. *Sharing Is Good: How to Save Money, Time and Resources through Collaborative Consumption*. New Society Publishers. 2013.
- Carr, N. 2011. *The Shallows: What the Internet Is Doing to Our Brains*. W.W. Norton & Company.
- CGAP. China: A digital payments revolution. 2019. www.cgap.org/research/publication/china-digital-payments-revolution
- Chao, E. How WeChat became China's app for everything. *Fast Company*. 2017. www.fastcompany.com/3065255/china-wechat-tencent-red-envelopes-and-social-money
- Chase, R. *Peers Inc: How People and Platforms Are Inventing the Collaborative Economy and Reinventing Capitalism*. PublicAffairs. 2015.
- Cherukuri, S. Amaravati smart city. Cityzenith's SmartWorldPro™ digital twin platform selected for new capital city in India. *City Zenith*. <https://cityzenith.com/customers/amaravati-smart-city><https://tomorrow.city/a/smarter-cities-are-born-with-digital-twins>
- CNNIC. Statistical report on internet development in China. 2020. <https://cnnic.com.cn/IDR/ReportDownloads/202012/P020201201530023411644.pdf>
- Cochoy, F., Licoppe, C., Petersson McIntyre, M., and Sörum, N. Digitalising consumer society: Equipment and devices of digital consumption. *Journal of Cultural Economy* 13(1). 2020. DOI: 10.1080/17530350.2019.1702576
- Cockayne, D.G. Sharing and neoliberal discourse: The economic function of sharing in the digital on-demand economy. *Geoforum* 77. 2016.
- Cook, S. 50+ Netflix statistics & facts that define the company's dominance in 2021. *Comparitech*. 2020. www.comparitech.com/blog/vpn-privacy/netflix-statistics-facts-figures/
- Davenport, T.H. and Beck, J.C. *The Attention Economy: Understanding the New Currency of Business*. Harvard Business School Press. 2001.
- Deakin, M. and AlWaer, H. From intelligent to smart cities. *Intelligent Buildings International* 3(3). 2011. www.tandfonline.com/doi/pdf/10.1080/17508975.2011.586673?needAccess=true

- Deloitte. XaaS Models: Our offerings. Making the shift to everything-as-a-service. www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/flashpoint-flexible-consumption-technology-platforms-cloud.html
- Edelman, B., Luca, M., and Svirsky, D. Racial discrimination in the sharing economy: Evidence from a field experiment. *Harvard Business School*. Working Paper 16-069. www.hbs.edu/faculty/Publication%20Files/16-069_5c3b2b36-d9f8-4b38-9639-2175aaf9ebc9.pdf
- Euromonitor. The new consumerism: The reach of the sharing economy. 2016. <http://blog.euromonitor.com/2016/04/the-new-consumerism-the-reach-of-the-sharing-economy.html>
- European Commission. Digital Economy and Society Index (DESI) 2020. Poland. <https://ec.europa.eu/digital-single-market/en/scoreboard/poland>
- European Union. Directive 2011/83/Eu Of The European Parliament And Of The Council On Consumer Rights, Amending Council Directive 93/13/EEC And Directive 1999/44/EC Of The European Parliament And Of The Council And Repealing Council Directive 85/577/EEC And Directive 97/7/EC Of The European Parliament And Of The Council. *Official Journal of the European Union*. 2011. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32011L0083>
- Eurostat. Individuals – internet activities. https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_ci_ac_i&lang=en
- Eurostat. The truth about online consumers. 2017 *Global Online Consumer Report*. KPMG. 2017. https://ec.europa.eu/eurostat/statistics-explained/index.php/E-commerce_statistics_for_individuals#Main_reason_for_not_buying_online
- FACT. Cracking down on digital piracy. Report. 2017. www.fact-uk.org.uk/files/2017/09/Cracking-Down-on-Digital-Piracy-Report-Sept-2017.pdf
- First Data / Forrester. From rideshare, music streaming, and food delivery: The global rise of digital goods and services. Regional and demographic trends driving global cross-border. Commerce. *Forrester*. 2019. www.firstdata.com/downloads/pdf/Cross-Border_Digital_Goods_Whitepaper.pdf
- Fitzgerald, T. How many streaming video services does the average person subscribe to? *Forbes*. 2019. www.forbes.com/sites/tonifitzgerald/2019/03/29/how-many-streaming-video-services-does-the-average-person-subscribe-to/?sh=58a3c0746301
- Floridi, L. The fourth revolution: How the infosphere is reshaping human reality. Oxford University Press. 2014. Cited in: *The Onlife Manifesto: Being Human in a Hyperconnected Era*. ed. Luciano, Floridi. Springer. 2015.
- Franck, G. The economy of attention. *Journal of Sociology*. 2018. <https://journals.sagepub.com/doi/full/10.1177/1440783318811778>
- Frenken, K. and Schor, J. Putting the sharing economy into perspective. *Environmental Innovation and Societal Transitions* 23. 2017. <https://doi.org/10.1016/j.eist.2017.01.003>
- Fukuyama, F. Trust. The Social Virtues and the Creation of Prosperity. Free Press. 1996.
- Gądek, J. Dobra cyfrowe w grach i ich wartość: skiny. *Tar Heel Capital*. 2020. <http://tarheelcap.com/dobra-cyfrowe-w-grach-i-ich-wartosc-skiny/>
- Gansky, L. *The Mesh: Why the Future of Business is Sharing*. Portfolio/Penguin. 2010.
- Gerlock, G. Farmers look for ways to circumvent tractor software locks. *NPR*. 2017. www.npr.org/sections/alltechconsidered/2017/04/09/523024776/farmers-look-for-ways-to-circumvent-tractor-software-locks?t=1610439650297

- Green, D. Amazon could make a bracelet that tracks workers' movements and buzzes them if they move in the wrong direction. *Business Insider*. 2018. www.businessinsider.com/amazon-patents-bracelet-that-tracks-workers-2018-2?IR=T
- Haines, D. There are now over 6 million Kindle eBooks on Amazon. *Just Publishing Advice*. 2020. <https://justpublishingadvice.com/there-are-now-over-5-million-kindle-ebooks/>
- Hamari, J. Why do people buy virtual goods? Attitude toward virtual good purchases versus game enjoyment. *International Journal of Information Management* 35(3). 2015. www.sciencedirect.com/science/article/pii/S0268401215000080
- Hamari, J. and Keronen, L. Why do people buy virtual goods: A meta-analysis. *Computers in Human Behavior* 71. 2017. www.researchgate.net/publication/312870311_Why_do_people_buy_virtual_goods_A_meta-analysis
- Hamari, J. and Lehdonvirta, V. Game design as marketing: How game mechanics create demand for virtual goods. *International Journal of Business Science and Applied Management* 5(1). 2010. www.business-and-management.org/library/2010/5_1--14-29-Hamari%2CLehdonvirta.pdf
- Hamari, J., Sjöklint, M., and Ukkonen, A. The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology* 67(9). 2016. <https://onlinelibrary.wiley.com/doi/full/10.1002/asi.23552>
- Hardin, G. The tragedy of the commons. *Science* 162(3859). 1968. <https://science.sciencemag.org/content/162/3859/1243.full>
- Harris, M., Gorenflo, N., and Doctorow, C. *Share or Die: Voices of the Get Lost Generation in the Age of Crisis*. New Society Publishers. 2012.
- Hellwig, K., Morhart, F., Girardin, E., and Hauser, M. Exploring different types of sharing: A proposed segmentation of the market for 'sharing' businesses. *Psychology & Marketing* 32(9). 2015. <https://onlinelibrary.wiley.com/doi/full/10.1002/mar.20825>
- Hermon, A. CD Projekt Red: \$9 billion story. *Medium*. 2020. <https://medium.com/@h.avihay/cd-projekt-red-9-billion-story-c9b326f566a0>
- Hoffman, D. L., Novak, T. P., and Stein, R. The digital consumer. In: *The Routledge Companion to Digital Consumption* Routledge. ed. Belk, R. W. and R. Llamas. Routledge Handbook Online. 2012. www.routledgehandbooks.com/doi/10.4324/9780203105306.ch3
- Holpuch, A. Minnesota woman to pay \$220,000 fine for 24 illegally downloaded songs. *The Guardian*. 2012. www.theguardian.com/technology/2012/sep/11/minnesota-woman-songs-illegally-downloaded
- Hongki, K., Kil-Soo, S., and Un-Kon, L. Effects of collaborative online shopping on shopping experience through social and relational perspectives. *Information & Management* 50(4). 2013. www.sciencedirect.com/science/article/pii/S0378720613000128
- Iqbal, M. Spotify usage and revenue statistics (2020). *Business of Apps*. 2020. www.businessofapps.com/data/spotify-statistics/
- Jewell, C. Creative industries in the platform economy. *WIPO Magazine*. 2018. www.wipo.int/wipo_magazine/en/2018/06/article_0001.html
- Jonnalagadda, H. Xiaomi Mi Smart Shoes review: Obsessively track your workouts. *Android Central*. 2017. www.androidcentral.com/xiaomi-mi-smart-shoes-review
- Kane, L. The attention economy. *Nielsen Norman Group*. 2019. www.nngroup.com/articles/attention-economy/
- Kavenna, J. Shoshana Zuboff: 'Surveillance capitalism is an assault on human autonomy'. *The Guardian*. 2019. www.theguardian.com/books/2019/oct/04/shoshana-zuboff-surveillance-capitalism-assault-human-automomy-digital-privacy

- King University Online. Cell phone addiction: The statistics of gadget dependency. 2017. <https://online.king.edu/news/cell-phone-addiction/>.
- Klein, A. China's digital payments revolution. *Brookings*. 2020. www.brookings.edu/research/chinas-digital-payments-revolution/
- Kowalkowski, C., Gebauer, H., Kamp, B., and Parry, G. Servitization and deservitization: Overview, concepts, and definitions. *Industrial Marketing Management* 60. 2017. www.sciencedirect.com/science/article/pii/S0019850116303571
- KPMG International Cooperative. 2017. The truth about online consumers. <https://assets.kpmg/content/dam/kpmg/xx/pdf/2017/01/the-truth-about-online-consumers.pdf>
- Kravets, D. 2010. Copyright lawsuits plummet in aftermath of RIAA campaign. *Wired*. www.wired.com/2010/05/riaa-bump/
- Krejcar, O., Maresova, P., Selamat, A., Melero, J.F., Barakovic, S., Barakovic, H.J., Herrera-Viedma, E. et al. Smart furniture as a component of a smart city – definition based on key technologies specification. *IEEE Access*. 2017. <https://arxiv.org/abs/1708.00001>
- Kurutz, S. Peloton instructors ride for fitness and fame. *New York Times*. 2017. www.nytimes.com/2017/02/01/style/peloton-fitness-cycling-celebrity-instructors.html
- Lawson, S. Transumers: Motivations of non-ownership consumption. In: *NA – Advances in Consumer Research no. 37*. ed. Campbell, M.C., Inman, J., and Pieters, R. Association for Consumer Research. 2010. www.acrwebsite.org/volumes/15449/volumes/v37/NA-37
- Lee, K-F. *AI Superpowers: China, Silicon Valley, and the New World Order*. Houghton Mifflin Harcourt. 2018.
- Lehdonvirta, V. Online spaces have material culture: Goodbye to digital post-materialism and hello to virtual consumption. *Media, Culture & Society* 32(5). 2010. <http://journals.sagepub.com/doi/abs/10.1177/0163443710378559>
- Lehdonvirta, V. A history of the digitalisation of consumer culture: From Amazon through Pirate Bay to FarmVille. In: *Digital Virtual Consumption*. ed. Denegri-Knott, J. and Molesworth, M. Routledge. 2012. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2501350
- Leswing, K. The average iPhone is unlocked 80 times per day. *Business Insider*. 2016. www.businessinsider.com/the-average-iphone-is-unlocked-80-times-per-day-2016-4?IR=T
- Lewis, P.H. Attention shoppers: Internet is open. *New York Times*. 1994. www.nytimes.com/1994/08/12/business/attention-shoppers-internet-is-open.html
- Markoff, J. *What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry*. Penguin Books. 2006.
- Matsakis, L. How the West got China's social credit system wrong. *Wired*. 2019. www.wired.com/story/china-social-credit-score-system/
- Mclaughlin, M. New GTA V release tipped to rake in £1bn in sales. *The Scotsman*. 2013. www.scotsman.com/whats-on/arts-and-entertainment/new-gta-v-release-tipped-rake-ps1bn-sales-2463312
- Meelen, T. and Frenken, K. Stop saying Uber is part of the sharing economy. *Fast Company*. 2015. www.fastcompany.com/3040863/stop-saying-uber-is-part-of-the-sharing-economy
- Microsoft. Books in Microsoft Store: FAQ. <https://support.microsoft.com/en-us/account-billing/books-in-microsoft-store-faq-ff0b7b84-7052-4088-9262-d7e4ee22419c>

- Microsoft. What happens to my data and access when my Microsoft 365 for business subscription ends? 2020. <https://docs.microsoft.com/en-us/microsoft-365/commerce/subscriptions/what-if-my-subscription-expires?view=o365-worldwide>
- Molesworth, M. and Denegri-Knott, J. Digital virtual consumption as transformative space. In: *The Routledge Companion to Digital Consumption* Routledge. ed. Belk, R.W. and Llamas, R. Routledge Handbook Online. 2012. www.routledgehandbooks.com/doi/10.4324/9780203105306.ch20
- Murray, M.R. Peloton: Exercising strategic thinking for a new business model. *UVA Darden Ideas to Action*. 2020. <https://ideas.darden.virginia.edu/peloton-exercising-strategic-thinking>
- Nanalyze. 11 smart shoes that are digitally connected. 2019. www.nanalyze.com/2019/02/smart-shoes-digitally-connected/
- National Research Foundation. Virtual Singapore. *Prime Minister's Office*. Singapore. www.nrf.gov.sg/programmes/virtual-singapore
- Peloton. www.onepeloton.com/
- Peloton. Indoor exercising bike with online streaming classes. www.onepeloton.com/bike
- Peloton. Introducing Instagram story sharing. Share. Connect. Explore. *The Output*. <https://blog.onepeloton.com/peloton-instagram-story-sharing/>
- Perez, C.C. *Invisible Women. Data Bias in a World Designed for Men*. Abrams Press. 2019.
- Ponelis, S. Information as economic good: Its origins, characteristics, pricing, and associated legal and ethical issues. In: *Approaches and Processes for Managing the Economics of Information Systems*. ed. Tsiakis, T., Kargidis, T. and Katsaros, P. IGI Global. 2014. www.igi-global.com/gateway/chapter/94275#pnlRecommendationForm
- Pope, D.G. and Sydnor, J.R. What's in a picture? Evidence of discrimination from Prosper.com. *Journal of Human Resources* 46(1). https://faculty.chicagobooth.edu/devin.pope/assets/files/Website_Prospcr.pdf
- Prasad, M., Patthi, B., Singla, A., Gupta, R., Saha, S., Kumar, J., Krishna, M.R., et al. Nomophobia: A cross-sectional study to assess mobile phone usage among dental students. *Journal of Clinical & Diagnostic Research*. www.ncbi.nlm.nih.gov/pmc/articles/PMC5376814/
- Retail Touchpoints. How many products does Amazon carry? <https://retailtouchpoints.com/resources/how-many-products-does-amazon-carry>
- Ritzer, G. *The McDonaldization of Society. Into the Digital Age*. Ninth Edition. International Student Edition. University of Maryland. 2018.
- Sadowski, J. *Too Smart: How Digital Capitalism is Extracting Data, Controlling Our Lives, and Taking Over the World*. The MIT Press. 2020.
- Scally, D. Child smartphone addiction growing, says German drug agency. *The Irish Times*. 2017. www.irishtimes.com/news/world/europe/child-smartphone-addiction-growing-says-german-drug-agency-1.3101529
- Scaria, A.G. Sci-Hub case: The court should protect science from greedy academic publishers. *The Wire*. 2020. <https://thewire.in/law/sci-hub-elsevier-delhi-high-court-access-medical-literature-scientific-publishing-access-inequity>
- Siegel, E. *Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die*. Wiley. 2016.
- Silver, L. 2019. Smartphone ownership is growing rapidly around the world, but not always equally. *Pew Research Center*. www.pewresearch.org/global/2019/02/05/smartphone-ownership-is-growing-rapidly-around-the-world-but-not-always-equally/

Skinwallet. www.skinwallet.com/pl/

Sorensen, K. Phygital – the new marketing frontier. *Konstrukt Digital*. 2020. <https://serviceplan.blog/en/2019/02/as-technology-vanishes-black-magic-appears/>

Statista. Wearables. www.statista.com/outlook/319/146/wearables/poland#market-revenue

Stoll, J.D. Is Peloton a fitness fad or a tech company? Everything's riding on the answer. *The Wall Street Journal*. 2020. www.wsj.com/articles/is-peloton-a-fitness-fad-or-a-tech-company-everythings-riding-on-the-answer-11579273632

Stus, M. Kilka tysięcy dolarów za 'topowe kosy' w grze. 'Dajemy możliwość wyrażenia siebie'. *Esportmania*. <https://esportmania.pl/big-stories/handel-skorkami-w-cs-go-na-czym-polega-skinwallet/jxcd3bg>

Temperton, J. I tried to keep my unborn child secret from Facebook and Google. *Wired*. 2019. www.wired.co.uk/article/the-internet-hates-secretsTikTok. How TikTok recommends videos #ForYou. <https://newsroom.tiktok.com/en-us/how-tiktok-recommends-videos-for-you>

Trindade, E.P., Hinnig, M.P.F., Moreira da Costa, E., Sabatini Marques, J., Cid Bastos, R., and Yigitcanlar, T. Sustainable development of smart cities: A systematic review of the literature. *Journal of Open Innovation: Technology, Market, and Complexity* 3(11). 2017. <https://jopeninnovation.springeropen.com/articles/10.1186/s40852-017-0063-2>

UNCTAD. Global e-Commerce sales surged to \$29 trillion. Geneva. 2019. <https://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=505>

Vandemerwe, S. and Rada, J. Servitisation of business: Adding value by adding services. *European Management Journal* 6(4). 1988. www.sciencedirect.com/science/article/pii/0263237388900333.

Vertesi, J. My experiment opting out of big data made me look like a criminal. *Time*. 2014. <http://time.com/83200/privacy-internet-big-data-opt-out/>

Waldfoegel, J. *Digital Renaissance: What Data and Economics Tell Us about the Future of Popular Culture*. Princeton University Press. 2018.

Wang, H.H. From virtual reality to personalised experiences: Alibaba is bringing us the future of retail this singles day. *Forbes*. 2016. www.forbes.com/sites/helenwang/2016/11/06/how-alibaba-will-use-the-worlds-biggest-shopping-day-to-transform-retail/#5bd808e06d4e

Watkins, R. and Denegri-Knott, J. Do we own our digital possessions? *Journal of Marketing Management*. 2016. www.jmmnews.com/do-we-own-our-digital-possessions/

Watkins, R., Denegri-Knott, J., and Molesworth, M. The relationship between ownership and possession: Observations from the context of digital virtual goods. *Journal of Marketing Management* 32(1–2). 2016. <http://dx.doi.org/10.1080/0267257X.2015.1089308>

Winnick, M. Putting a finger on our phone obsession. Mobile touches: a study on how humans use technology. *Blog Dscout*. 2016. <https://blog.dscout.com/mobile-touches>

Winograd, M. and Hais, M.D. *Millennial Momentum: How a New Generation Is Remaking America*. Rutgers University Press. 2011.

Wolfenbarger, M. and Gilly, M.C. Shopping online for freedom, control, and fun. *California Management Review* 43(2). 2001. <https://journals.sagepub.com/doi/10.2307/41166074>

Ye, T., Alahmad, R., Pierce, C., and Robert, L.P. Race and rating on sharing economy platforms: The effect of race similarity and reputation on trust and booking intention in Airbnb. *Conference: Proceedings of the 38th International Conference on Information*

- Systems (ICIS 2017)*. Korea. Seoul. 2017. www.researchgate.net/publication/319957147_Race_and_Rating_on_Sharing_Economy_Platforms_The_Effect_of_Race_Similarity_and_Reputation_on_Trust_and_Booking_Intention_in_Airbnb
- Young, J. Global ecommerce sales to reach nearly \$3.46 trillion in 2019. *Digital Commerce*. 2019. www.digitalcommerce360.com/article/global-ecommerce-sales/
- Yue, H. and Yingzhe, G. 2020. Tencent launches credit scoring system based on WeChat purchases. *CX Tech*. www.caixinglobal.com/2020-06-08/tencent-launches-credit-scoring-system-based-on-wechat-purchases-101564336.html
- Zuboff, S. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Profile Books. 2019.