

Chapter 2

The Digital Behemoths

Instead of enlarging our overall economy by creating more value that is on the books, the rise of digital networking is enriching a relative few while moving the value created by the many off the books.

Jaron Lanier – Who Owns the Future?

He's f—king destroyed this town [Silicon Valley]. Any time there's an inkling of innovation here, any time a new idea comes up, Zuckerberg either buys it and shuts it down, or copies it and shuts it down anyway.

Venture Capitalist speaking to Nick Bilton of *Vanity Fair*¹

The Big Four

There is a strong view expressed by some public commentator and technology utopians that the digital online world is a bastion of freedom, where small start-ups happen by chance and are encouraged in great numbers and where everyone has an equal voice, opportunity and share in the success of this libertarian stronghold. This is the all-powerful and self-confident narrative that emanates from Silicon Valley. Meanwhile, internet access has quickly become a necessary utility for many people around the world and is seen as a crucial medium through which people can express themselves and share ideas and, it is suggested, has become an increasingly important tool through which democracy and human rights activists mobilise and advocate for political, social and economic reform.² Only a few decades ago, the use of the internet was limited and its availability and reach restricted.

¹<https://www.vanityfair.com/news/2019/11/how-mark-zuckerberg-became-the-most-reviled-man-in-tech>

²For an example of such activism, the 'Freedom House' at <https://freedomhouse.org/>.

The Social, Cultural and Environmental Costs of Hyper-Connectivity: Sleeping Through the Revolution, 19–37



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Today, access has become almost universal, but even as the network and the numbers of users have grown exponentially over the recent past, control of the internet itself has contracted into the hands of the few. A small number of very powerful digital corporations now dominate the internet and digitalisation experience and environments. The Big Four tech companies – also known as the Gang of Four or the Four Horsemen³ – the mammoth US multinationals offering online services, computer hardware and software applications and social media platforms, have come to dominate our experience and understanding of the online digital world over the past decade. These foremost corporations are Google,⁴ Amazon, Facebook and Apple. Google now controls nearly 90 per cent of search engine advertising, Amazon about 75 per cent of all online sales and Facebook almost 80 per cent of mobile social media online traffic. Apple is now the company with the highest market capitalisation in the world. Such dominance is essentially monopolistic, and these digital oligopolies are even more powerful than the corporations that have preceded them, which tended to have been limited to a single product, market or service.⁵ These four digital behemoths effectively control the tech industry, and it is next to impossible for newer nimble rivals to challenge or overtake them to any significant extent. In this chapter, we will trace the beginnings of these tech giants and attempt to uncover the reasons why these specific corporations have come to dictate and control our online experiences. Later in this chapter, we will look at some of the controversies that have come to dog these mammoth concerns over the recent past and have begun to dent and damage their carefully choreographed image and credentials as ‘do no harm’ progressive digital pioneers.

Google

The Google story began in the summer of 1995 when Larry Page first met Sergey Brin, who was then a second-year graduate student in the computer science department at Stanford University. Gregarious by nature, Brin had volunteered as a guide for potential first-year students at the university. His duties included showing recruits the campus and leading a tour of the nearby San Francisco area. Page, an engineering major from the University of Michigan, joined Brin’s group and the two reportedly clashed incessantly on the first day of their meeting debating, among other things, the value of various approaches to urban planning and design. Both, it is suggested, shared a passion for jousting with an intellectually worthy antagonist, even if it meant taking absurd positions. But this early relentless banter and verbal sparring laid the groundwork for what was to become a partnership imbued with mutual respect, even though each found

³Galloway (2017).

⁴Google changed its corporate structure and name in 2015 when the search company became a wholly owned subsidiary of Alphabet Inc., but for clarity, we will use the name Google as it is more widely publicly recognised as such.

⁵Taplin (2017).

the other cocky and obnoxious at first.⁶ By January 1996, the pair had begun collaborating on writing a programme for a search engine they called *BackRub*, named after its ability to do backlink analysis. The project resulted in a widely popular research paper titled *The Anatomy of a Large-Scale Hypertextual Web Search Engine*.⁷ The search engine was novel in that it used a particular web technology they developed called *PageRank*, which determined a website's relevance by taking into account the number of pages, along with the importance of the pages, which linked back to the original website. They had created an algorithm ranking system that rewarded links that came from sources that were important and penalised those that did not. Prior to this, efforts to help computer users find information on the internet – including *AltaVista*, *WebCrawler*, *Infoseek*, *HotBot*, *Magellan*, *Excite* and *Lycos* – left many well short of their expectations. Such search engines merely ranked results based on how often a search term appeared on a webpage and were often meaningless. Buoyed by the positive reaction to *BackRub* and the many enthusiastic reviews it received, the pair set about working on further developing this particularly unique internet search platform. In the autumn of 1997, both Brin and Page decided that *BackRub* was a cumbersome name and that they needed something catchier and that would fit the image of their new innovative platform and tech environment. Having originally come up with the name *Googleplex*, they later shortened this to just *Google* and registered *Google.com* that very same evening. They released the first version of *Google* on the Stanford University website in August 1996, almost one year after they first met, and both took leave of absence from the university in late 1998 to pursue the building of their search engine and company.

Brin and Page were perfectly positioned to pounce when the internet.com bubble spectacularly bust at the turn of the century. As a private enterprise start-up, they were protected from the worst excesses of the crash which destroyed many of the publicly owned digital technology companies of the day. What *Google* was very successfully able to leverage was the wealth of talent that now found themselves out of work. This outstanding pool of software engineering and mathematical talent presented a one-time opportunity for *Google* to add enormous brainpower and depth to the company that would not have been possible under more normal circumstances. By early 2001, *Google* was performing an estimated 100 million web searches per day, which equates to 1,000 searches a second. The term 'Google' had by now entered the American lexicon as a verb, a trend documented by a *New York Observer* article that chronicled New Yorkers 'googling' each other before dates.⁸ By now, Eric Schmidt had arrived as the new CEO of the company tasked with expanding the business beyond the United States and to aggressively generate new advertisement sales abroad. By 2003, millions of people worldwide were searching online using *Google* in their own native language, and by spring 2004, Brin and Page had added their 'Gmail' service to their growing

⁶Vise (2005, p. 21).

⁷Brin and Page (1998).

⁸Vise (2005, p. 99).

list of accomplishments. This led to mounting concerns among politicians and privacy advocacy groups about the company's ad-driven profiteering from their email service and issues concerning overall unwarranted invasion of privacy.⁹

Google founders Brin and Page have always maintained that they ran their business with a specific motto in mind: don't be evil. They sought to explain what they meant by this in terms of their web search philosophy:

Our search results are the best we know how to produce. We do not accept payment for them or for inclusion or more frequent updating. We also display advertising, which we work hard to make relevant, and label it clearly. This is similar to a well-run newspaper, where the advertisements are clear and the articles are not influenced by the advertisers' payments.¹⁰

By April 2004, they had filed an Initial Public Offering (IPO) to go public with Google and, although they had some initial setbacks and adverse headlines, when the company made its first public offering on the NASDAQ exchange on 19 August, the stock jumped from \$15.01 to \$100.01, raising \$1.67 billion and giving the company an initial market value of some \$23.1 billion.¹¹ For Brin and Page, they had pulled off one of the biggest IPO's ever made on the stock exchange, while earning the respect of corporate leaders by maintaining control over the process without comprising the Google culture. By the time the company held its first annual general meeting of stockholders in May 2005, the stock price had passed \$225, and by July that year, it had broken through the \$300 barrier. As John Battelle maintained in his book *The Search*, as we move our private data to online company servers, we are making an implicit bargain, one that the public at large is either entirely content with or, more likely, one that most have taken at heart. That bargain is that we trust you to 'not do evil' with our information, which we freely give you. We trust that you keep it secure, free from unlawful government interference or private search and seizure and under close control at all times. We understand that you might use data in aggregate to provide us better and more useful services, but we trust that you will not identify individuals personally through our data, nor use our private data in a manner that would violate our own sense of privacy and freedom.¹²

Amazon

In 1994, Jeff Bezos, who had formerly worked in New York's Wall Street as a hedge fund executive, incorporated Amazon.com which has today expanded to become the largest online retail website in the world. From its humble beginnings

⁹Vise (2005, p. 156).

¹⁰Vise (2005, pp. 177-178).

¹¹Vise (2005, p. 190).

¹²Battelle (2011, p. 15).

in a garage at his home in Bellevue, Washington, to an international goliath employing one million people worldwide,¹³ the company has enjoyed remarkable growth and success over the last two decades, enlarging still further during the recent pandemic. It has been suggested that in choosing the Amazon name, it was primarily because it began with the first letter of the alphabet and thus it would be at the top of any alphabetised list and also because of its association with the vast South American river of the same name.¹⁴ Bezos was thinking big from the very start. At the outset, he commissioned market research which indicated that selling books online offered the best possible route to success in retail online sales. But Bezos wanted Amazon to be much more than a simple online retail platform; he set his sights to also creating an entire online community, and an early indication of this was the website's feature that enabled readers to add their own personal book reviews for other customers to examine. On 5 July 1994, Bezos incorporated the first version of Amazon as a company in Seattle, Washington, and on 15 May 1997, the company went public. The IPO was set at \$18, but by the end of the day, public demand had pushed the share price to more than \$30 per share, and Amazon went on to raise \$150 million by the end of that year.¹⁵

In the beginning, the Amazon business model was derided and met with scepticism from some financial journalists and sector analysts who mocked the company by referring to it as Amazon.bomb.¹⁶ Such doubters claimed Amazon ultimately would lose in the marketplace to established bookseller chains once these incumbents launched competing e-commerce websites, and the lack of profit in the early years seemed to justify such criticism. Investors began questioning Amazon's ability to ever reach profitability on the back of deepening financial losses over these early years. But Bezos dismissed these cynics for not fully appreciating and understanding the enormous growth potential of leveraging the power of the internet. He argued that to succeed as an online retailer, a company needed to 'get big fast', a slogan he adopted and had printed on employee T-shirts. And get big quickly they did. After its first full year in operation, it had some 1,000,000 customer accounts. Its revenue jumped from \$15.7 million in 1996 to \$148 million in 1997, followed by \$610 million in 1998, and Amazon's success propelled its founder to become *Time* magazine's 1999 Person of the Year.¹⁷ The company was growing at an incredible rate from just selling books, but Bezos wanted to expand beyond just a single product and thus began to sell other goods

¹³Sumagaysay, L. (2020). Amazon reaches 1 million workers amid pandemic hiring frenzy. *MarketWatch*, July 30. Retrieved from <https://www.marketwatch.com/story/amazon-reaches-1-million-workers-as-pandemic-pushes-total-up-11596136565>

¹⁴Byers (2007, pp. 46-47).

¹⁵Krishnamurthy (2004).

¹⁶Doherty, J. (1999). Amazon.bomb. *The Wall Street Journal*, May 31. Retrieved from <https://www.wsj.com/articles/SB927932262753284707>

¹⁷Jeffrey Preston Bezos: 1999 person of the year. *Time*. Retrieved from <http://content.time.com/time/magazine/article/0,9171,992927,00.html>

and items online to raise the profile and dominance of Amazon and move to becoming the ‘everything store’.¹⁸

In the spring of 2001, Bezos met personally with Costco founder Jim Sinegal, who managed to change Bezos’ mind on Amazon’s pricing strategy. The Costco model is all about customer loyalty; it does not advertise and earns most of its profit from annual membership fees, but Costco then uses its heavy sales volume to negotiate better deals from suppliers. In July 2001, Amazon announced that it was cutting the price of books, music and videos by 20–30 per cent to build customer loyalty and increase its customer base. But Bezos also repositioned Amazon as not just an online retailer but also a technology company.¹⁹ To underscore this, in 2002, the company launched Amazon Web Services (AWS), which initially offered data on internet traffic patterns, a website popularity index and other statistics for digital technology developers and marketers. In 2006, the company expanded its AWS portfolio with its Elastic Compute Cloud (EC2), which rents out computer processing power in small or large increments to companies. That same year the Simple Storage Service (S3), which rents data storage over the internet, became available.²⁰ In November 2005, Amazon launched Mechanical Turk, a service which allows the hiring of workers to preform low-cost, hard to automate services like image recognition and data categorisation. It is a system that allows often well-educated workers complete microtasks on Amazon’s platform for small amounts of money: new workers unfamiliar with Amazon Mechanical Turk tips and tricks making as low as \$2–3 an hour, while the average worker makes just about \$8 hourly.²¹ Jeremias Prassel suggests that the plan was to ‘rent out Amazon’s guts and become the world’s leading provider of web services’.²² Software developers requiring processing power and data storage would no longer need to purchase expensive hardware to meet their needs; they could tap into Amazon’s vast servers instead and pay just a fraction of the cost for the services they required.

Throughout the last two decades, Amazon’s retail sales gained formidable momentum, and its experimental digital tech projects began yielding fruit. In its 2019 financial accounts, Amazon reported a net sales increase of 20 per cent to \$280.5 billion, compared with \$232.9 billion in 2018.²³ In addition to announcing

¹⁸Stone (2013).

¹⁹In Stone (2013), Chapter 4 discusses a breakfast meeting between the two at which Sinegal outlined the Costco business model, which primarily focusses on building customer loyalty and setting a coherent pricing strategy.

²⁰Hall, M. (2008). Amazon.com. *Britannica*, May 5. Retrieved from <https://www.britannica.com/topic/Amazoncom>

²¹Matsakis, L. (2016). Fifty percent of Mechanical Turk workers have college degrees, study finds. *Vice*, November 7. Retrieved from <https://www.vice.com/en/article/mg-79bv/fifty-percent-of-mechanical-turk-workers-have-college-degrees-study-finds>

²²Prassl (2018, pp. 1-2).

²³Amazon.com announces fourth quarter sales up 21% to \$87.4 billion. (2020). *Amazon*, January 30. Retrieved from <https://ir.aboutamazon.com/news-release/news-release-details/2020/Amazoncom-Announces-Fourth-Quarter-Sales-up-21-to-874-Billion/default.aspx>

a host of new innovations, developments and releases, net sales for the first quarter of 2020 were expected to grow between 16 per cent and 22 per cent compared with the first quarter of 2019. Amazon's 2020 third-quarter earnings soared to new heights as pandemic sales tripled profits at the company.

Facebook

Mark Zuckerberg, along with fellow classmates Eduardo Saverin and later Dustin Moskovitz and Chris Hughes, founded Facebook while in his second-year studying Psychology at Harvard University. A keen computer programmer, Zuckerberg had already developed several basic social networking websites for use by fellow students on campus. One of these networking sites – *Coursematch* – was a modest project which allowed students to pick classes based on who else was taking that particular class. You simply clicked on a course to who was signed up or clicked on a student's name to what courses he or she was signed up to. He also created *Facemash*, a frivolous website where you could rate people's overall attractiveness. The images for Facemash came from the so-called facebook maintained by each of the Harvard houses where undergraduate students lived. These were the photos taken on orientation day and Zuckerberg cunningly found a way to unscrupulously appropriate and use these images from nine of the 12 Harvard houses.²⁴ In most cases, he simply hacked in to their databases over the internet, but in other cases, he obtained log-in details from a friend and even, in one instance, crept into the house, plugged an Ethernet cable into the wall, and downloaded the names and photos from the house computer. He was starting as he intended to go on, asking for forgiveness not permission. The website became an instant underground hit with the students. Zuckerberg was later accused of violating the college's code of conduct in the way the site handled security, copyright and privacy and was called before the Harvard Disciplinary Administrative Board. The resulting inquiry had Zuckerberg put on probation, and he was required to a counsellor.²⁵ What Facemash did show was that Zuckerberg had a knack for making software that others found irresistible.

In February 2004, Zuckerberg launched what was then known as *Thefacebook*. This was the title taken from the sheets of paper distributed to all freshmen, which profiled all students and staff across the university. While both *Coursematch* and *Facemash* were hosted on-site on the Harvard network, this time he found an off-site hosting company called *Manage.com* where *Thefacebook's* software and data were to reside. Within 24 hours of the launch upwards of 1,200 Harvard students had signed up, and after just one month, over half of the undergraduate population had a profile on the online social networking site. Six days after the launch, Harvard seniors Cameron Winklevoss, Tyler Winklevoss and Divya Narendra accused Zuckerberg of stealing their ideas for their intended social networking website called *HarvardConnection*. They claimed they had hired Zuckerberg to

²⁴Kirkpatrick (2011, p. 23).

²⁵Kirkpatrick (2011, p. 25).

work on their programme and that he had advised them their plans were unlikely to succeed.²⁶ The claimants later filed a lawsuit against Zuckerberg, and the matter was eventually settled out of court.

Membership of the social networking website was initially restricted to Harvard students, but the team behind the project later extended the site to include other Boston universities, Ivy League schools and eventually all other universities and colleges across the United States. In 2004, Napster founder Sean Parker became the company's president after impressing Zuckerberg with his entrepreneurial zeal. Parker was among a growing number of Silicon Valley executives who were convinced that online social networking would become very big business having himself created Plaxo, an online address book and social networking service that integrated with Microsoft Outlook. At this stage, Zuckerberg and Moskovitz had also moved to a new Palo Alto location, one of the principal cities of Silicon Valley. In the summer of 2005, the company changed the site's name from TheFacebook to just Facebook after purchasing the domain name facebook.com for \$200,000 from a company called *AboutFace*.²⁷ The following year, venture capital firm Accel Partners invested a significant sum in the company, which enabled the creation of a version of the network site for high school students. Facebook would later expand to encompass other collectives, such as employees of companies. US high school students could sign up to the website by September 2005, and from there, it spread worldwide reaching UK universities the following month. In September 2006, Facebook announced that anyone who was at least 13 years old and had a valid email address could join the network. By 2009, it had become the world's most used online social networking platform, displacing and finishing off many of its competitors in the process.²⁸ With offices in more than 70 cities worldwide, 17 data centres globally and some 53,534 full-time employees,²⁹ Facebook now has approximately 2 billion monthly active users on their platform.³⁰ The Covid-19 coronavirus pandemic and resulting lockdowns and restrictions were also the catalyst for some significant growth for Facebook and its suite of apps. Daily users of Facebook increased 12 per cent year over year, to 1.79 billion. Monthly usage across its family of apps, which also include Instagram and WhatsApp, rose 14 per cent, to 3.14 billion. And Facebook's

²⁶Kirkpatrick (2011, pp. 40-41).

²⁷Kirkpatrick (2011, p. 145).

²⁸Bellis, M. (2019). The history of Facebook and how it was invented. *ThoughtCo*, October 20. Retrieved from <https://www.thoughtco.com/who-invented-facebook-1991791>

²⁹Facebook company information. (2020). *Facebook*, June 30. Retrieved from <https://about.fb.com/company-info/>

³⁰On the afternoon of 27 June 2017, Mark Zuckerberg posted a brief message on his Facebook page stating, '[a]s of this morning, the Facebook community is now officially 2 billion people! We're making progress connecting the world, and now let's bring the world closer together. It's an honor to be on this journey with you': <https://www.facebook.com/zuck/posts/10103831654565331?pnref=story>.

mostly ad-based business rose accordingly with the company's revenue up 11 per cent year over year to \$18.69 billion.³¹

Apple

Steve Jobs and Steve Wozniak co-founded Apple in 1976 in the Job's family garage, primarily to sell Wozniak's Apple I personal computer. It was claimed they funded their joint entrepreneurial venture when Jobs sold his Volkswagen bus and Wozniak sold his beloved scientific calculator.³² The two had been members of the HomeBrew Computer Club, building the blue boxes phone phreakers used to make free calls across the United States during the 1970s. Both were college dropouts, but both had a definitive vision of developing a computer small enough for people to have in their own home or office. Building upon the Apple I, the duo gained fame and some wealth a year later with the development of Apple II, one of the first highly successful mass-produced microcomputers. The Apple I had been sold without a monitor, keyboard or casing but the Apple II transformed the entire industry by including these, in addition to the introduction of the first ever colour graphics. Sales jumped from \$7.8 million in 1978 to \$117 million in 1980, the year Apple went public.³³ Both Jobs and Wozniak are widely credited with revolutionising the computer technology industry with their vision for Apple by democratising the technology and making computers smaller, cheaper, intuitive and accessible to everyday consumers. After Apple became a publicly traded company in 1980, the company's subsequent products suffered some significant design flaws resulting in several recalls and general consumer dissatisfaction and disappointment. IBM surpassed Apple in sales around that time, and the industry effectively became an IBM/PC-dominated business world.³⁴ Wozniak left Apple in 1983 because of his diminishing interest in the day-to-day running of the company, and Jobs subsequently hired the president of PepsiCo John Sculley to be Chief Executive Officer (CEO).³⁵

In February 1985, Jobs did a celebrated interview with *Playboy* magazine. Journalist David Sheff painted a picture of a guy: 'in jeans and worn sneakers, running a company that prides itself on having a mixture of Sixties idealism and

³¹Newton, C. (2020). Facebook usage and revenue continue to grow as the pandemic rages on. *The Verge*, July 30. Retrieved from <https://www.theverge.com/2020/7/30/21348308/facebook-earnings-q2-2020-pandemic-revenue-usage-growth>

³²Steve Jobs. (2017). *Biography*, April 27. Retrieved from <https://www.biography.com/business-figure/steve-jobs>

³³Brashares (2001, p. 21).

³⁴Steve Jobs. (2017). *Biography*, April 27. Retrieved from <https://www.biography.com/business-figure/steve-jobs>

³⁵Milestones along the way for Apple's trip to \$1 trillion. (2018). *The Associated Press*, August 2. Retrieved from <https://apnews.com/article/fec7df0cf9ec4b7aaddc37f016dff3b7>

Eighties business savvy, Jobs is both admired and feared'.³⁶ When asked how computers were going to change our collective personal lives Jobs responded:

A computer is the most incredible tool we've ever seen. It can be a writing tool, a communications center, a supercalculator, a planner, a filer and an artistic instrument all in one, just by being given new instructions, or software, to work from. There are no other tools that have the power and versatility of a computer. We have no idea how far it's going to go. Right now, computers make our lives easier. They do work for us in fractions of a second that would take us hours. They increase the quality of life, some of that by simply automating drudgery and some of that by broadening our possibilities. As things progress, they'll be doing more and more for us.³⁷

Shortly after this interview, and with increasing tension and conflict about the direction of the company, the Apple board of directors sided with Scully against a now combative Jobs. The previous year Apple had released the Macintosh, which was marketed on its design, style, youthfulness and representing a creative and a counterculture lifestyle. Despite good initial sales and a superior performance to that of the existing IBM/PC, the Macintosh was still not compatible with the PC, and Scully disagreed with Jobs over the pricing of each individual unit. Having initially being sidelined, Jobs left the company before the end of 1985. Away from Apple, Jobs invested in and developed animation producer Pixar and then founded NeXT to create high-end computers. Throughout the remainder of the 1980s, Apple continued to do well, and in 1990, it posted its highest profits to that date. This was, however, mainly due to the plans that Jobs had set in motion before he left the company, most notably his deal with a tiny company by the name of Adobe, creator of the Portable Document Format (PDF). Together the two companies created the phenomenon known as desktop publishing.³⁸ Meanwhile, Job's NeXT was receiving considerable industry attention with the development of its operating system and when Apple sought a replacement for its backbone software, it was drawn to NeXT and the systems capabilities. Apple acquired the company in 1997 and Steve Jobs returned as Apple's CEO after just a few months in waiting.

Apple had, by this time, gone through a particularly rocky patch and was facing into a mounting financial crisis. It had struggled as inexpensive PCs running

³⁶Sheff, D. (1985). Playboy interview: Steven Jobs. *Playboy*, February 1. Retrieved from <http://www.thecosmosphere.com/wp-content/uploads/2011/10/Playboy-Interview-With-Steve-Jobs.pdf>

³⁷Sheff, D. (1985). Playboy interview: Steven Jobs (p. 7). *Playboy*, February 1. Retrieved from <http://www.thecosmosphere.com/wp-content/uploads/2011/10/Playboy-Interview-With-Steve-Jobs.pdf>

³⁸Brashares (2001, p. 59).

Windows flooded the computer marketplace. Apple was busily haemorrhaging money at an alarming rate and was on the verge of bankruptcy. Jobs quickly regained control and took drastic steps to turn around Apple's decline. The company requested, and received, a \$150 million investment from Bill Gates and Microsoft in 1997,³⁹ which was used to ramp up advertising and highlight the successful products Apple already offered, while Jobs also choked off Research and Development (R&D) money in non-productive areas. He began working closely with designer Jony Ive to develop a new line of products that had wider and superior cultural ramifications, beginning in 1997 with the 'Think Different' advertising campaign and leading to the *iMac*, *iTunes*, *iTunes Store*, *Apple Store*, *iPod*, *iPhone*, *App Store* and the *iPad*. When Jobs stepped down as CEO of Apple, he was replaced by Tim Cook. Jobs had been diagnosed with a rare form of pancreatic cancer in 2003 and had undergone major reconstructive surgery. Throughout 2008 and 2009, he had suffered additional health problems leading to a liver transplant, and two months after stepping down as Apple CEO, in August 2011, he passed away. Apple continued to prosper under the leadership of Cook developing several iterations of its iOS (Operating System) and its flagship iPhone, iMac, iPad and music systems. In October 2019, the company posted a quarterly revenue of \$64 billion, an increase of 2 per cent from the previous year's quarter returns, and quarterly earnings per diluted share of \$3.03, up 4 per cent. International sales accounted for 60 per cent of the quarter's revenue.⁴⁰ Apple was thriving and even a worldwide pandemic could not slow its extraordinary growth. At the end of July 2020, the company posted quarterly revenue of \$59.7 billion, an increase of 11 per cent from the previous year's quarter.⁴¹

So, What's the Problem?

Such business success and accomplishments should surely be generally applauded, and the drive and the spirit of entrepreneurship shown by Page, Brin, Bezos, Zuckerberg, Jobs and Cook – among others – widely acknowledged and celebrated. And it is. They have been lauded by public commentators, politicians, decision-makers and governments worldwide and acclaimed for their ability to create well-paid employment for workers in the United States, Central America, Europe, Asia, India and Africa. Not only are such positions highly prized in many developed and developing nations, these global corporations also add to a country's image and sense of self-worth in the new digital twenty-first century.

³⁹Silver, S. (2018). August 6, 1997 - The day Apple and Microsoft made peace. *Apple Insider*. Retrieved from <https://appleinsider.com/articles/18/08/06/august-6-1997--the-day-apple-and-microsoft-made-peace>

⁴⁰Apple reports fourth quarter results. (2019). *Apple Press Release*, October 30. Retrieved from <https://www.apple.com/uk/newsroom/2019/10/apple-reports-fourth-quarter-results/>

⁴¹Apple reports third quarter results. (2020). *Apple Newsroom*, July 30. Retrieved from <https://www.apple.com/newsroom/2020/07/apple-reports-third-quarter-results/>

Such appeal adds further weight to the strength and influence these companies already have, making them more powerful than most countries on the planet. These corporate beasts of the Information Age – Google, Facebook, Amazon and Apple – are four of the most influential companies in the world today and have been influencing our daily routines and lives so completely; they are almost impossible to ignore, avoid or boycott. They have become much more powerful than nation states and their reach across international borders have made them untouchable super-rich mega-entities. As virtual digital monopolies, they have been allowed prey on competitors and incumbents for some time, either outmuscling them financially or simply swallowing them whole and meshing them into their own organisational structures and corporate cultures. This is not only having the effect of stifling competition and innovation; it's also leading to these digital behemoths becoming impervious to any form of real competition. Google, Facebook and Amazon are built on a model of personal data collection, analysis and monetisation. These data are not just ordinary mundane figures. This is the personal, sometime imitate, information people freely give to these platforms to avail of the free services on offer. However, by monetising this personal information, there is now widespread acceptance that such data have real tangible value, but such value only accrues to these platforms and not the individuals from whence it came. In fact, once such data are analysed, transformed and redirected, it may be causing us harm.

Jaron Lanier – the American computer philosophy writer, computer scientist and believed founding father of the field of virtual reality – suggests that in this new digital world order, money and power are concentrated in the hands of the few, and these dominant digital technology firms are becoming the new global ruling class. In *Who Owns the Future?* he argues that our insatiable demand for information and entertainment, and for access to instant communications and trivia, has come at a heavy price.⁴² Lanier likens the online economic model to that of offline retail giant Walmart, with its low-cost, low-value, low-payment principles. Lanier posits that the middle class is increasingly disenfranchised from online economies by both eroding employment and job security, along with various protections that give the economic middle stability. By convincing users to give away valuable information about themselves in exchange for free services, these dominant tech giants can accrue large amounts of vital personal data at virtually no cost. Lanier calls these firms *Siren Servers* – companies, technological tools and platforms that Hoover up vast quantities of our personal information and our work for commercial gain – and instead of paying each individual for their contribution to the overall data pool, wealth is concentrated in the hands of the few, who control the data centres. He claimed that the early internet years had fetishised open access and knowledge-sharing in a way that has distracted most digital technology users from demanding fairness and job security in an economy predicated on data flows. His solution to this disparity is a humanistic information economy, one in which participants achieve some level of economic dignity

⁴²Lanier (2013).

by being proportionally compensated for all their contributions to the immense constellations of information we leave on the internet, and that is continually monetised by these digital giants.

In *Move Fast and Break Things*, Jonathan Taplin offers a powerful overview of how online life has come to be shaped by the values of these modern entrepreneurs that created these technological giants.⁴³ Taplin argues that digital information and communication technology has become critical and central to all our daily lives, as well as the world economy, and yet no decision on how it is designed, organised and managed has ever been democratically voted upon. Indeed, discussions and debates about these digital technology business models are only now, belatedly, emerging into the mainstream. Fundamental design and development decisions are almost wholly made by the engineers and libertarian executives at Google, Facebook and Amazon – among other tech giants – and levied upon an unsuspecting public without any regulatory scrutiny or oversight. The ordinary citizen, who has come to rely heavily on the internet for work, to stay connected and interact with friends and family, to purchase goods and services online, has never been given an opportunity to shape their own personal digital online experiences nor been given the choice over what personal information they wish to be monetised by digital technology corporations. Since the inception of the internet politicians and policy-makers have acted as if the rules that apply to the rest of the economy in the offline world do not apply to the digital realm. But we must better understand and acknowledge the underlying dangers to our social, cultural, political and economic systems associated with an ever-increasing concentration of power, wealth and influence in the hands of just a few individuals in a globalised world. The immense fortunes created over the last two decades by the digital revolution may also have done more to increase global economic inequalities, and the associated negative externalities, than almost any other factor in the recent past. Yet there is a belief that the oversize gains of many digital technology billionaires are the result of a genius entrepreneur culture, and that inequality at this scale is a choice and the result of laws and taxes that we, as a society, choose to establish and embrace.⁴⁴ Such an unequitable view, of course, comes almost exclusively from within the tech industry itself and is strongly libertarian in its stance.

The substance of many of Taplin's arguments are based on the dominance of this libertarian ideology amongst these new technological elite. The early online digital world was based on the countercultural revolution and the vision and idealism of people like Doug Engelbart, Stewart Brand, Vint Cerf and Tim Berners-Lee and a host of other architects of the early internet. Most of this initial research and work came about through funding from the US government's Defence Advanced Research Projects Agency (DARPA), set up to expand the frontiers of expertise beyond the immediate and specific requirements of the military. Significantly, these early pioneers saw the computer and the internet as

⁴³Taplin (2017).

⁴⁴Taplin (2017, p. 9).

primarily tools to augment human flourishing, not damage, substitute or replace it. But this ideological slant shifted significantly in the mid- to late 1990s with the emergence of a new breed of tech entrepreneurs heavily funded by investors and venture capitalists who saw a different future for this newly emerging online digital world. For many of these new Turks, their philosophical heroine was Ayn Rand. Born in Russia, this New York-based writer and philosopher is widely known for two best-selling novels, *The Fountainhead* and *Atlas Shrugged*, and for developing a philosophical system called Objectivism. Her belief system is best summed up by her most famous quote:

achievement of your happiness is the only moral purpose of your life, and that happiness – not pain or mindless self-indulgence – is the proof of your moral integrity, since it is the proof and the result of your loyalty at the achievement of your values.⁴⁵

It is a libertarian value that dismisses altruism and cooperation and, Taplin argues, has become the conventional guiding philosophy for both Silicon Valley and today's US Republican Party.⁴⁶

The libertarian faith in the supremacy of the free market as the natural order of things has led some to pursue a low or no tax, non-regulatory regime, a value which permeates the digital tech sector. But in the absence of rules or some agreed norms, darker and more sinister forces gain a foothold. Former US President Barack Obama decried this environment as a 'wild, wild west' environment for allowing conspiracy theorists a broad platform and for destroying a common basis for debate, and he called for a new era of cooperation between governments and the private sector to defeat a range of fast-evolving online threats.⁴⁷ Speaking to *Vanity Fair* in 2018, Tim Berners-Lee declared; 'for people who want to make sure the web serves humanity, we have to concern ourselves with what people are building on top of it'.⁴⁸ Berners-Lee has spent most of the latter part of his career striving to protect and guard the internet against the injurious assault by those who would seek to only profit from his invention, at the expense of human flourishing and well-being:

⁴⁵Rand (2011).

⁴⁶Rand (2011, pp. 73-74).

⁴⁷Perlroth, N., & Sanger, D. S. (2015). Obama calls for new cooperation to wrangle the "Wild West" internet. *The New York Times*, February 13. Retrieved from <https://www.nytimes.com/2015/02/14/business/obama-urges-tech-companies-to-cooperate-on-internet-security.html>

⁴⁸Brooker, K. (2018). I was devastated: Tim Berners-Lee, the man who created the World Wide Web, has some regrets. *Vanity Fair*, July 1. Retrieved from <https://www.vanityfair.com/news/2018/07/the-man-who-created-the-world-wide-web-has-some-regrets>

We demonstrated that the Web had failed instead of served humanity, as it was supposed to have done, and failed in many places. The increasing centralisation of the web has ended up producing – with no deliberate action of the people who designed the platform – a large-scale emergent phenomenon which is anti-human.⁴⁹

But these digital oligopolies may not have it all their own way for much longer. In 2019, the US Department of Justice (DOJ) announced a vast antitrust investigation into the big four tech companies to determine if they are, in fact, engaging in monopolistic anticompetitive activities and behaviour.⁵⁰ This announcement comes hot on the heels of the largest penalty ever levied by the Federal Trade Commission (FTC) against Facebook, and the European Union (EU) opening an antitrust inquiry into Amazon's business practices with outside sellers. Facebook was ordered to pay \$5 billion to settle the FTC's investigation into assertions that it misused customer data.⁵¹ Because of the power and influence these digital megacorporations enjoy, and the ease in which they move data between jurisdictions, they have also managed to limit and avoid paying an equitable and fair share of tax in the nation states in which they are due through a host of aggressive tax avoidance mechanisms and instruments. They have also been able to dominant and influence policy decisions to their advantage in some small European states such as Ireland and Luxembourg.

In Ireland, for instance, this has led to an extraordinary situation in which Apple, due to its tax liabilities in other EU states, were levied with a €13 billion tax bill payable to Ireland as the country in which it had moved most of its major tax obligations. Court papers suggested the Head Office of Apple Sales International had no staff or physical presence in Ireland, and crucially, it had no tax residency in the country. Nevertheless, Apple Sales International held the rights to use Apple's intellectual property to sell and manufacture Apple products outside the Americas. It was a convenient arrangement for Apple, duly approved by the Irish government. It ensured that the digital giant's tax liability for sales of its products across Europe in the decade between 2003 and 2014 dropped from 1 per cent of profits to 0.005 per cent.⁵² In 2013, the European Commission's competition

⁴⁹Brooker, K. (2018). I was devastated: Tim Berners-Lee, the man who created the World Wide Web, has some regrets. *Vanity Fair*, July 1. Retrieved from <https://www.vanityfair.com/news/2018/07/the-man-who-created-the-world-wide-web-has-some-regrets>

⁵⁰Kelly, J. (2019). Justice Department is investigating Google, Apple, Facebook and Amazon for monopolistic activities. *Forbes*, July 24. Retrieved from <https://www.forbes.com/sites/jackkelly/2019/07/24/justice-department-is-investigating-google-apple-facebook-and-amazon-for-monopolistic-activities/>

⁵¹Shepardson, D. (2019). FTC to announce \$5 billion settlement with Facebook as early as this week: Sources. *Reuters*, July 22. Retrieved from <https://www.reuters.com/article/us-facebook-ftc-idUSKCN1UH25S>

⁵²Smyth, P. (2019). Explainer: Apple's €13bn tax appeal has huge implications. *The Irish Times*, September 13. Retrieved from <https://www.irishtimes.com/business/economy/explainer-apple-s-13bn-tax-appeal-has-huge-implications-1.4017044>

directorate began an investigation into the arrangement, and in June 2016, Commissioner Margrethe Vestager pronounced what amounted to the largest corporate tax fine in history. Technically speaking, however, it was not a fine. Instead, a very reluctant Irish government was ordered to recover the €13 billion in taxes allegedly underpaid by Apple, regarded by the Commission as improper state aid.

However, in an extraordinary move, the country set about challenging this directly with the EU on behalf of Apple. On 7 September 2016, the Irish government secured a majority in Dáil Éireann – the Irish Parliament – to challenge the EU decision and reject the collection of the back-taxes.⁵³ The government formally appealed the ruling on the grounds there was no violation of Irish tax law, and that the Commission’s action was an intrusion into Irish sovereignty as national tax policy is excluded from EU treaties. In November 2016, Apple CEO Tim Cook announced Apple would also appeal, and in September 2018, Apple lodged €13 billion to an escrow account pending this appeal. In May 2019, the Irish Public Accounts Committee was informed by officials from the Department of Finance that defending the Apple case had, to date, cost the Irish state €7.1 million in mostly legal fees, and that the case could take a decade to reach a final verdict.⁵⁴ Ireland won their case in July 2020, a decision that is likely to be subject to further EU appeal. In shielding Apple from paying its fair share of tax, Ireland has placed itself in an unenviable position where the Nobel laureate and economist Joseph Stiglitz, speaking to the *Irish Times*, suggests: the state is ‘robbing’ its European neighbours by allowing Apple pay such a low tax rate.⁵⁵

Apple are not alone in seeking to exploit lax internationally coordinated tax regulation and the other digital technology behemoths actively work to limit their tax liabilities to each state in which it is due. In January 2020, it was reported that Google had been using the ‘double Irish’⁵⁶ to funnel billions in global profits through Ireland and on to Google Ireland Holdings, the parent company for Google Ireland, which is located in Bermuda, effectively putting them beyond the reach of US tax authorities. Google Ireland Holdings recorded \$14.5 billion in untaxed profits in 2017, on turnover of \$22.3 billion, while having no staff

⁵³O’Halloran, M., & O’Regan, M. (2016). Dáil Apple debate: Government wins appeal motion. *The Irish Times*, September 7. Retrieved from <https://www.irishtimes.com/news/politics/d%C3%A1il-apple-debate-government-wins-appeal-motion-1.2782484>.

⁵⁴McMorrow, C. (2019). State’s appeal of EU Apple tax ruling has cost €7.1m so far. *RTÉ News*, May 30. Retrieved from <https://www.rte.ie/news/business/2019/0530/1052573-apple-tax-case/>

⁵⁵Hamilton, P. (2020). Ireland “robbing” European neighbours with low tax rate - Stiglitz. *The Irish Times*, June 15. Retrieved from <https://www.irishtimes.com/business/economy/ireland-robbing-european-neighbours-with-low-tax-rate-stiglitz-1.4279638>

⁵⁶The Double Irish was a base erosion and profit shifting (BEPS) corporate tax tool used mostly by US multinationals to avoid corporate taxation on non-US profits. It was the largest tax avoidance tool in history and by 2010 was shielding US\$100 billion annually in US multinational foreign profits from taxation: <https://www.ft.com/content/f7a2b958-4fc8-11e4-908e-00144feab7de>.

on its books.⁵⁷ The US Internal Revenue Service (IRS) is also in a decade-long battle with Facebook. The case is rooted in a series of so-called transfer pricing arrangements between Facebook's US parent and its Irish hub, which were put in place prior to the company's flotation on the stock market in 2012.⁵⁸ Under these arrangements, Facebook's Irish hub paid royalties to its US parent for the use of the social media company's intellectual property. The lower the value Facebook placed on the intellectual property, the less royalties the Irish unit would have to pay to the United States, thus leaving more profits in the Irish unit where it would face lower taxes – much less than in the United States where it would have been taxed at 35 per cent. If the IRS' case is fully accepted by the San Francisco court, Facebook could be hit with a US tax bill of more than \$9 billion.⁵⁹

Amazon's zeal for tax avoidance is also extremely concerning, and in its 20-year of history, they have carved out exceptional competitive tax positions as the company expanded globally. In documents seen by Newsweek from a landmark court case in Seattle between Amazon and the IRS, it was revealed how the company has attained global dominance over competitors in part by moving its global headquarters to the small, landlocked state of Luxembourg at the heart of Europe.⁶⁰ The court documents shed light on allegations of large-scale tax avoidance and also raised serious questions and concerns about how and why Luxembourg handed one of the world's largest and wealthiest companies a tax deal that private citizens can only have dreamed about. It was also reported that Amazon received €294 million in tax credits in 2019 that it could deduct from future bills for its European operations, as revenues at the online retailer rose significantly to €32 billion.⁶¹ The company said it received the tax credits because it made a loss

⁵⁷Burke-Kennedy, E. (2020). Explainer: Google and its double Irish tax scheme. *The Irish Times*, January 2. Retrieved from <https://www.irishtimes.com/business/economy/explainer-google-and-its-double-irish-tax-scheme-1.4128929>

⁵⁸Paul, M. (2020). Facebook's \$9bn Irish tax row due to begin in US court. *The Irish Times*, February 10, Retrieved from <https://www.irishtimes.com/business/economy/facebook-s-9bn-irish-tax-row-due-to-begin-in-us-court-1.4168386>

⁵⁹The current and former Irish governments are believed to have very close relationships to key individuals from many of the significant technology industry players in the country. In correspondences obtained by the Irish *Sunday Independent* in 2019, then-government leader Leo Varadkar had penned a number of letters, notes and emails demonstrating the warm and very close relationship between Mark Zuckerberg of Facebook and the government, with Mr Varadkar personally thanking Mr Zuckerberg for his 'ongoing investment in Ireland': <https://www.independent.ie/opinion/comment/wayne-oconnor-leo-varadkars-cead-mile-failte-emails-to-facebook-chief-mark-zuckerberg-38351927.html>

⁶⁰Marks, S. (2016). Amazon: How the world's largest retailer keeps tax collectors at bay. *Newsweek*, July 13. Retrieved from <https://www.newsweek.com/2016/07/22/amazon-jeff-bezos-taxes-479814.html>

⁶¹Sweney, M. (2020). Amazon given €294m in tax credits as European revenues jump to €32bn. *The Guardian*, April 21. Retrieved from <https://www.theguardian.com/technology/2020/apr/21/amazon-given-294m-in-tax-credits-as-european-revenues-jump-to-32bn>

the previous year due to its investment programme and the highly competitive retail environment in the UK and across Europe. Meanwhile, after increasing warehouse workers' pay in recognition of the increased risks they faced while doing their jobs during the recent pandemic – routinely calling them 'heroes' in public communications – Amazon rolled back their \$2 per hour hazard pay and petitioned the US Congress to pass a law to protect the company from lawsuits in illegal price gouging cases.⁶²

Digital Age Sloganism

Entrepreneurship, innovation, invention: these are all the hallmarks of a thriving society and economy and rightly should be celebrated and applauded. Properly focussed and with social and environmental integrity and goodwill, such dynamism can, and does, bring great improvements to people's lives right across all sectors of society and can keep us better connected and informed. But for too long now, we have bowed down to a small number of individuals at the head of some of the largest corporations the world has seen since the inception of the industrial age to decide and dictate the values and direction of our societies. These individuals have been given power and influence well beyond the imagination and comprehension of kings and presidents of the past and present. Apple, Google, Facebook and Amazon pride themselves in their benevolence and humanity, reflected in many of the slogans they have adopted. *The Power to Be Your Best, Think Differently, Don't Be Evil, Do the Right Thing, It's Free and Will Always Be*; all conjure images of altruism, compassion, charity and support for people and communities. Yet the dominances of these mammoth digital technology corporations coincide with the climate emergency, an age of extreme economic inequality between and within nations, excessive amounts of fake, harmful and downright dangerous misinformation, the rise of autocratic rulers across the world, wage stagnation, longer working hours and diminished home life and the growth in sedentary lifestyles resulting in alarming rates of obesity and ill-health. They may not be to blame for all these societal concerns, but we deserve to interrogate their business models and ask them difficult questions when they're needed to be asked, and we deserve answers and action to protect against the growing dominance of just a few technology companies and privileged individuals and a headlong rush towards digital plutocracy. Moreover, the domination of the online environment but just a handful of megacorporation and individuals is generating a uniform digital experience based on a white, male, US-centric perspective that is harmful to the diversity that makes life so interesting. An examination of possible shifts towards cultural homogenisation facilitated by aspects of digitalisation follows in the next chapter.

⁶²Newton, C. (2020). How Amazon is growing its power during the pandemic. *The Verge*, May 14. Retrieved from <https://www.theverge.com/interface/2020/5/14/21257313/amazon-delivery-times-worker-raises-price-gouging-liability-pandemic>

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