3 Silicon Valley ageism – ideologies and practices of expulsion in the technology industry

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Silicon Valley is the US centre for innovative technology and home to 2000 technology companies, the densest concentration in the world. Even more important, most of these companies are also industry leaders in areas that include robotics, artificial intelligence (AI), social media and other uses of the internet. Silicon Valley sets standards for others. Companies worldwide look up to the technology giants to incorporate their business models and management styles (Gold, 2018). "The future looks Californian", writes Sidney Rothstein, saying that California has captured the imaginations not just of consumers but also of policymakers (Rothstein, 2017). Digital transformation, advocated by political leaders as the cornerstone of future economic growth and combatting climate change, is being driven by those companies in an oligarchic way. Digital oligarchy is the fastest growing consolidation of power in the contemporary economic system. In fact, the number of influential technology companies is expected to shrink from 70 in 2017 to 30 by 2030 and possibly 10 by 2050 (Andriole, 2018).

Yet, these companies show rampant signs of various types of systematic biases and prejudice (Cook, 2020; Lyons, 2016), ageism being one of them. Gullette observes: "Silicon Valley can, in fact, be the most ageist place on the Earth" (Gullette, 2017, p. xx). Surveys carried out among workers in technology companies confirm that ageism is a reality for the workers in Silicon Valley. A survey among American tech workers shows that 76% of respondents say ageism exists in tech globally, while 80% of those in their late 40s say they are concerned that their age will affect their careers (Dice, 2018). Interviews conducted in Silicon Valley also suggest a hidden norm that no one over 35 will be hired (Svensson, 2021).

Not only are workplace relations and the careers of "older" tech workers at risk, but there is also a growing concern about how new technologies – including AI or big data approaches – are biased towards the young user (Rosales & Fernández-Ardèvol, 2019; Stypińska, 2022). There is ample evidence that biases in the tech industry translate into biases in the technology products and services developed there, particularly in cases of sexism or racism (Cook, 2020) and increasingly in cases of ageism (Rosales & Fernández-Ardèvol, 2020).

A plethora of anecdotal evidence and media coverage points to the brutal and ubiquitous character of ageism in technology industry. At the same time, empirical data, and a systematic approach to studying this phenomenon, are scarce in scientific literature. This chapter aims to explore and characterise the specific nature of ageism in Silicon Valley. While this has clear similarities to how culture is historically ageist and how this has a bearing on the technology culture today (see Svensson in this volume). The main purpose of this chapter is to propose a theoretical framework guiding future empirical and critical research into the phenomenon of ageism and perhaps other systems of oppression and discrimination in the technology industry. We, therefore, propose a conceptual framework of Silicon Valley Ageism to explore (1) what narratives of age are constructed in Silicon Valley companies and start-ups, (2) how this relates to workplace practices in the Valley and (3) how this has a bearing on the products and services coming out of Silicon Valley.

Silicon Valley ageism

Ageism and age discrimination have been prevalent in different ways and forms in various branches and sectors of the economy (Ayalon & Tesch-Römer, 2018). Ageism in employment and labour relations is, in fact, one of the oldest forms of ageism, which has been studied extensively for decades, as well as legally prohibited since 1967 in the US and 2004 in EU member countries (Stypińska & Turek, 2017). Various theories explain the origins of ageism and age discrimination in the labour market. Originating in social psychology, the Intergroup Contact Theory (Allport, 1954), one of the most prominent and empirically tested, suggests that properly managed contacts should reduce issues of stereotyping, prejudice, and discrimination that commonly occur between competing groups. Lack of contact between different age groups might thus lead to increased ageism and age discrimination. A socio-historical Modernization Theory (Cowgill & Holmes, 1972) claims that changes involved in the growth of industrial societies, with the crucial role of modern technology, cause a decline in the status of older persons and the development of ageism. More recent approaches, such as multilevel and dynamic organisational perspectives (Turek et al., 2022) strive to explain the underlying mechanisms of how stereotypes affect hard, soft and self-discrimination based on age in the workplace. Moreover, the concept of "relative age", referring to an individual's age as compared to the average or mean age in a sector, company or profession (McMullin & Dryburgh, 2011), can be a good starting point for understanding discrimination against individuals in a concrete enterprise setting.

Silicon Valley, apart from being a geographical territory, is also a conceptual artefact. It is home to many start-ups and global technology companies, and globally it is a symbol for the creation of digital technologies, the milieu of innovation (Castells, 1998) and one of the superpowers, next to China, in the global AI race (Lee, 2018). But it is also a place with its own myths

and even psychology (Cook, 2020). Defining it is an elusive task. In our understanding of the technology industry in Silicon Valley, we draw on the definition by Bartlett, who proposes to understand the technology industry as "the digital technologies associated with Silicon Valley —social media platforms, big data, mobile technology and AI – that are increasingly dominating economic, political and social life" (Bartlett, cited in Cook, 2020, p. 4). It includes both the technology giants as well as medium-sized companies and start-ups.

Digital transformation and the fourth industrial revolution (Industry 4.0) are behind the rapid and unprecedented rise in power, size and relevance of the technology industry globally. The founder of the World Economic Forum, Schwab, coined the term "Fourth Industrial Revolution" and described a new era characterised by a technological revolution "that is blurring the lines between the physical, digital and biological spheres" (Schwab, 2016). One where our lives will ultimately be altered by emerging technology breakthroughs in fields such as AI, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage and quantum computing (Schwab, 2016). As a result, we observe that jobs in the technology industry are growing steadily. However, there are suggestions that this expansion might increase ageism and age discrimination in the workplace (Sink & Bales, 2016). Programming languages keep changing, and Silicon Valley programmers must keep learning throughout their professional lives to remain relevant or leave the scene for younger programmers (Rosales & Svensson, 2021).

The classical definition of ageism as "a systematic stereotyping and discrimination against people because they are old" (Butler, 1975) paved the way for understanding this phenomenon. Even though the use of chronological age as a cut off for defining older workers is not straightforward, a scoping review of research on age discrimination in the labour market demonstrated that ageism starts to affect workers who reach at least 45 years of age (Harris et al., 2018). As we will demonstrate in this chapter, "Silicon Valley Ageism" is directed against persons of much younger chronological age (already in late 20s, 30s and 40s). An online survey among technology workers shows that one-fourth of respondents in their early 30s already regard age as a barrier to obtaining a new job (Dice, 2018). Another study, carried out among UK workers, revealed that on average, across the wider workforce, people said they first started to experience ageism at work at an average age of 41, while IT workers say they first experienced this at an average age of 29 (Sevilla, 2020). In Rosales and Svensson's (2021) interview study of technology workers worldwide, 35 is the age when they are considered "old". Programmers over 40 are considered not to have the cognitive capacities required for a programming job or have other priorities beyond the commitment to job. They often worry whether they would be able to continue with all the effort required to be a programmer when they are in their 40s or 50s (Rosales & Svensson, 2021).

In this chapter, we conceptualise "Silicon Valley Ageism" as negative attitudes, beliefs, and behaviours towards older adults – manifested in interpersonal relations and institutional practices – as well as narratives about age and old age present in various ideologies and myths about Silicon Valley. Silicon Valley Ageism is characterised by an earlier onset in terms of chronological age than ageism in other areas and its effects result in the *expulsion* of older workers *from* the technology industry and narratives of ageing and older age *from* discourses.

To explore Silicon Valley Ageism, we draw theoretically on the concept of "expulsions" proposed by Sassen (2014). She uses the term to describe the extreme forms of exclusion and marginalisation in contemporary global economic relations, exclusions which are no longer possible to describe under the label of social inequalities. In her book, "Expulsions. Brutality and complexity in the global economy" she argues that the past two decades have seen a sharp increase in the number of people, enterprises and places expelled from the core social and economic orders of our time, as well as Earth's biosphere through destruction of the natural environment (Sassen, 2014). In place of the principle of inclusion in the pre-1980s Keynesian era, the planet is progressively governed by a principle of excluding people, land, natural resources, and water. Sassen writes, "the notion of expulsions takes us beyond the more familiar idea of growing inequality as a way of capturing the pathologies of today's global capitalism" (2014, p. 1). Examples of expulsions analysed by Sassen include austerity policies in Greece and Spain, land-grabbing (industrial acquisition of land) methods, or complex financial instruments resulting in mass homelessness in the USA after the mortgage crisis. The common denominator of those practices is the sweeping destructive effect on certain groups and populations leading to their marginalisation and disappearance from statistics and discourses. The expulsions are hidden behind a high level of complexity, which, as Sassen (2014) argues, became the organising principle of modern order-making systems, such as global finance or environmental protection.

Even though Sassen's book centres primarily on issues such as land grabs, the impact of structural adjustment and austerity programmes, financial speculation and fraud, as well as environmental destruction and degradation, we argue that the concept of expulsions can also be applied to Silicon Valley modes of operation. A vivid exemplification of this is put forward by Lyons in a book documenting his experiences in a technology start-up:

> Silicon Valley has a dark side (…) it is a world where wealth is distributed unevenly and benefits accrue mostly to investors and founders, who have rigged the game in their favor. It's a world where older workers are not wanted, where people get tossed aside when they turn forty.
> (Lyons, 2016, p. 115)

In this chapter we focus on the expulsions of workers (based on their perceived relatively older age) and images of ageing from the socio-technological
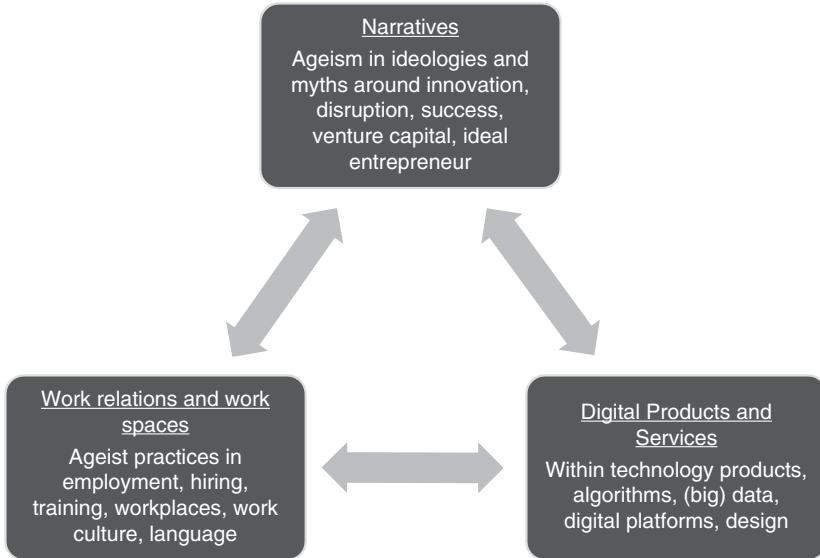
Figure 3.1 Silicon Valley ageism: The structure of multiple modes of expulsions.

systems. Using Sassen's (2014) terminology, we want to argue that the technology industry, with its champion Silicon Valley, has created a space of multiple modes of expulsions of old age and older people from (1) narratives, (2) work relations and workspaces and (3) digital products and services (see Figure 3.1).

Silicon Valley ageism: Narratives

Silicon Valley is a product of a series of narratives which shape and reshape ideologies and myths surrounding allegedly the most innovative place on Earth. Silicon Valley colonises the public imagination with visions of successful entrepreneurs, unicorn start-ups, ground-breaking innovation, cutting-edge technologies and lucrative business solutions. Some even argue that the biggest invention of Silicon Valley is the entrepreneurial and start-up culture (Fisher, 2018). The importance of these ideologies and myths for creating the meaning of Silicon Valley is underlined by Cook, who writes: "Silicon Valley is full of myths. Some of which are true. Many of which are not" (Cook, 2020, p. 67). The success behind the myths, stories and ideologies of Silicon Valley may be due to conscious and concerted efforts by various spin doctors and marketing agencies in the Valley and/or an effect of the spectacular commercial successes of the biggest players in the game (Cook, 2020). Either way, the promises and slogans of the technology industry, "making the world a better place" (Svensson, 2021), fall short of the reality of change they produce. In this section, we reflect on different types of narratives, ideologies

and myths surrounding the concepts of (1) innovation and disruption, (2) the ideal type of young entrepreneur/start-up founder and (3) ageing bodies and mortality in Silicon Valley.

The first narrative to be examined is that regarding the meaning of innovation and disruption. Silicon Valley Ageism occurs in companies driven by high innovation risk-taking, often financed by venture capitalists (start-up sector). It originated in a mindset that started during the dot-com explosion when young programmers monopolised technical know-how when launching digital start-up companies. Most of them were in their early 20s, and being 32 was already considered too old for investors. Indeed, investors are often dazzled by young programmers' passion and velocity (see Lyons, 2016; Rosales & Svensson, 2021). Here, the concept of disruption, originating in innovation and business theory, is essential. Disruptive innovation is "innovation that creates a new market and value network and eventually disrupts an existing market and value network, displacing established market-leading firms, products, and alliances" (Rahman et al., 2017, p. 112). Svensson (2021) argues that disruption is a core value in technology culture as it is conceived of as driving innovation, progress and success. These are the stories of "unicorn-start-ups"[1] with implausible success or established technology giants that started as the hobby of two geeks in their early 20s in a garage, which hold the collective imagination and frame the way success is understood in Silicon Valley. The unicorn, as a mythical creature that is rarely seen and almost impossible to capture, becomes a metaphor of the improbability of a start-up's success (Svensson, 2021). Ensmenger (2015) describes this narrative in terms of the underdog who, against all odds, produces technology immediately recognised as revolutionary; the lonely nerd that "turned accidental billionaire", and points at its importance in contemporary Silicon Valley imagination. Such narratives imply that anyone over 30 is incapable of innovation. The value given to the young age of start-up founders is entangled with an ideology that innovation, and more precisely the disruptive type of innovation, is an attribute of youth. "People under 35 are the people who make change happen (…) People over 45 basically die in terms of new ideas", said venture capitalist Vinod Khosla (Sink & Bales, 2016). Such blunt statements create a rather uncanny narrative about innovation and age, which seems to permeate the ideologies and values on which Silicon Valley is founded.

Second sort of narratives reinforcing ageism in the technology industry are those referring to the ideal type of entrepreneur and entrepreneurship and the intertwined meaning of success dominant in Silicon Valley. Slogans created by the industry range from Google's "Don't be evil" to Facebook's ambition to "bring the world closer together" to "revolutionising healthcare" – a claim made by now infamous Elisabeth Holmes and her company (unicorn start-up) Theranos. The case of Holmes is an excellent exemplification of how chronological age interplays with ideas of an ideal entrepreneur prevalent in Silicon Valley. The start-up, founded in 2003 by the then 19-year-old

college dropout, had all the necessary features of a Silicon Valley fairy tale. It operated in "stealth mode" for a decade while developing a new technology to perform many standard medical tests using only a single drop of blood. During this time, Theranos raised more than $700 million from investors (including billionaires Rupert Murdoch and Larry Ellison), who valued the company at $9 billion (Forbes, 2022). The media coverage of Holmes began when her start-up company managed to win immense amounts of venture capital and ended with her indictment and multiple charges of wire fraud and conspiracy to commit wire fraud. Regardless of the content of the given coverage, the young age of Theranos' founder and CEO was continually mentioned as her most characteristic trait, next to being depicted as charismatic, brilliant, and visionary. Due to her astonishing success at such a young age, she belonged to the club of the most spectacular careers Silicon Valley has ever witnessed. Like many other high-school dropouts (another ageist myth dominating Silicon Valley, see Svensson, 2021), she was frequently compared to Jobs, or the founders of Facebook and Google, who started their companies at a very young age. In 2014, when she was 30 years old, Forbes named Holmes the world's youngest self-made female billionaire – worth $4.5 billion. On 18th November 2022, she was sentenced to 11 years and 3 months in federal prison for defrauding investors in Theranos, Inc. of hundreds of millions of dollars (Office of the United States Attorney, 2022).

Silicon Valley's fascination for the young entrepreneurs is prevalent in Fisher's (2018) book about Silicon Valley. The whole chapter on Atari, a legendary video game company, is a tale of a group of boys having fun. Fisher provides stories about young people dedicating their lives to their companies and spending all their time in the office. "It did not look like a business whatsoever – it looked like a bunch of kids in their mid-twenties, you know, screwing around", as Google's executive Ayers phrases it, reflecting on the early days of Google (in Fisher, 2018, p. 279). "Everyone was twentysomething except for me, who was ancient at thirty-five" (Cairns, in Fisher, 2018, p. 281). Napster (one of the first file-sharing programs) programmer Aydar says that he was the older guy even though he was only 23 (Fisher, 2018). Napster is a prime example of Silicon Valley's weakness for youth, as it was created by Fanning when he was in his early teenage years. Hence, there seems to be a belief in Silicon Valley that "young people are just smarter", as Zuckerberg bluntly puts it (Fisher, 2018, p. 362).

This, and many similar stories, feed into the myth of a technology innovator and entrepreneur as a young person with a bold vision, determined to achieve exceptional success in a very short time. These images are further strengthened by entrepreneurs being profiled according to their age by business magazine outlets such as "Forbes 30 under 30" or "The Business Journal's Forty Under 40". This age-based framing of success stories of people's careers creates a rigid and impermeable system which divides people into categories of those who succeed and those who fail, and which does not account for the diversity of human life courses and different life experiences

by syphoning off only those who accomplished success before a certain age. Through such arbitrary age limits, a false perception of entrepreneurial success is created as something which is intrinsically age related. This, in turn, creates a reality where those who do not fit the age limits are symbolically expelled from even the potential for success, at least in a figurative way.

In the last few years, several memoirs documenting this reality have been published. Wiener describes her experiences as a misfit in Silicon Valley and being advised "that San Francisco is the best place to be young. You should try to go there before it is too late" (Wiener, 2020, p. 32). She reports how corporations offer a bonus at the start of the contract to attract young, qualified candidates and have offices that are more comfortable to live in than the flats they can rent in San Francisco. She also describes a sexist and ageist culture where people ask: "How would you explain that to your mother?" assuming that older women would have more difficulties understanding innovative digital technologies. Lyons (2016), in his memoirs, recalls multiple situations where his age stood in blatant contradiction to the ideology of the company he worked for and the way it handled its business and its workers. Both he and Wiener observe that the prevailingly young employees are ready to give their hearts and souls for the success of the company and, what's more, they are not only in the "best place to be young", but they feel privileged as employees and that with their disruptive innovations they are changing the world.

The last narratives of Silicon Valley to be discussed are those evolving around ageing, ageing bodies, the fear of death and obsession with immortality. These narratives create an unconscious bias against anyone and anything, which represents a reminder of ageing. Ageism here is the revulsion at the prospect of one's future self and that human beings manage deeply rooted fears about their vulnerability to death through symbolic construction of meaning (Martens et al., 2005). The management of this fear can take on a variety of forms, one of them being large financial investments in technologies in the anti-ageing industry. Recent media coverage about vast investments in the development of longevity medicine, fuelled by money from, inter alia, Jeff Bezos and other prominent figures (Sample, 2022) reveals the troubled relationship of technology industry giants with ageing and dying as an integral part of the human experience. A plethora of start-ups is involved in the race to find the ultimate fix for long life. There have been significant advances in the field of regenerative medicine, which promises an extension of life span. These technologies, including deep learning algorithms, mark a new era of research into biological ageing and the (alleged) possibility of slowing down, stopping or even reversing ageing processes on a cellular and molecular level (Zhavoronkov et al., 2021). With the goal of increasing a healthy lifespan, these technologies are indeed shifting how we think about health, sickness and ageing (Woods, 2020). Aubrey de Grey, biotechnologist and a prominent figure in regenerative medicine and in the anti-ageing movement suggests provocatively: "I think there is at least a 50/50 chance that most people alive

today will live to 1000 years old" (Sens Foundation, 2021). Those attempts should finally lead to the expulsion of ageing and problems related to it, as well as death, from the life experience of the technology oligarchs, giving them a supra-human status.

Indeed, technology has a problem with bodies in general and ageing bodies in particular. Hackers have always had a problematic relationship with the body. In popular depictions, they are (usually) overweight and unattractive, spending long hours in front of a computer screen neglecting their bodies, but behind the computer they are omnipotent (Thomas, 2002). As Levy (1984) puts it, programming is the ultimate disembodied activity. It is possible to trace this imagination to technology culture's origin in the 60s counter-cultural movement and hippie influence (see Svensson in this volume). The out-of-body experience induced by LSD and other psychedelic drugs greatly impacted how some pioneers imagined the future and the role of computers in it. It was believed that in an LSD trip, users escaped their bodies and experienced a kind of consciousness shared with all living things. This was compared to computer-mediated communication in which users could share experiences and communicate without being as dependent on having their physical bodies present in the same room (see Turner, 2006). To enter cyberspace, programmers needed to forsake their bodies and become information. Cyberspace offered transpersonal communion and became evidence of a mystical transformation of humanity. This theme also resonates in science fiction classics such as Gibson's "Neuromancer" from 1984. The novel describes how so-called "console cowboys" could wire themselves and leave their bodies behind. Disembodiment permeates the book as protagonist Henry Dorsett Case jacks himself "into a custom cyberspace deck that projected his disembodied consciousness into the consensual hallucination that was the matrix", or how Case "lived for the bodiless exultation of cyberspace", had a "relaxed contempt for the flesh" or how he "fell into the prison of his own flesh", for him the worst kind of punishment (Gibson, 1984, p. 6).

Work relations and workspaces

The second mode of expulsions of old age and older workers is the realm at the intersection of interpersonal relations and corporate culture. Ageism is manifested in hiring and firing practices and technology workers' training opportunities. The role of chronological age in hiring practices in IT companies is a well-known phenomenon. It is frequently addressed in discussion fora, such as Reddit, Quora or LinkedIn. Queries such as: "I'm 35 years old. Am I too old to join Google, Facebook, Microsoft or Apple as a software engineer?", "What's the maximum age at which Google will hire you as a fresher?" or "What is the age limit for a Google job?" resonate with many reports from programmers (Rosales & Svensson, 2021). The preoccupation with chronological age being a barrier to starting or continuing a technological career seems to be following the demographics of the industry giants.

According to Statista Research, the median age of Facebook's workforce is 28 (Statista, 2016). The social media giant is not unique in this regard: The average age at LinkedIn is 29, in the case of Google, it is 30, and at Apple or Amazon, the employees are, on average, 31 years old (Statista, 2016). For comparison – the median age of an American worker is 42. The magic word "diversity" does not seem to apply to age in Silicon Valley (Cook, 2020).

Age discrimination in the technology industry is a widespread phenomenon (Ajunwa, 2019). The Dice Diversity Report suggests that 76% of respondents agreed that ageism exists globally in technology industry. Moreover, age discrimination is the most common type of unequal treatment among IT workers, with 29% of respondents reporting having experienced it, in contrast to gender discrimination – 21%, sexual orientation – 6% and political affiliation – 11% (Dice, 2018). There is additional evidence that age discrimination in Silicon Valley is not only becoming more widespread but has long been more prevalent than discrimination based on race or gender. Research by Bloomberg showed that between 2008 and 2015, a staggering 226 age discrimination complaints were filed against the 150 largest information technology companies in California. In the same period, 28% fewer complaints of racial discrimination and 9% fewer complaints of gender discrimination were registered (Hymowitz & Burnson, 2016).

Ageism is not only identified in employment relations but also among the investors of start-ups. A "State of Start-ups" survey from 2018 showed that 37% of founders experienced ageist bias from investors (compared to 28% on gender and 26% on race). Founders participating in this survey said ageism starts at the age of 46. Furthermore, a quarter of the founders said the bias affects entrepreneurs as young as 36. A staggering 89% of respondents agree that older people face age discrimination in the industry (State of Start-ups, 2018). Lyons explains this as investors having "decided that the optimal return is young kids: Burn them out, get rid of them, replace them" (cited in Zara, 2016). The myth of dropping out of high school mentioned previously also plays out here. The ideal start-up founders are "white, male, nerds who have dropped out of Harvard or Stanford and have absolutely no social life", as voiced by one industry leader at the National Venture Capital Association meeting (Cook, 2020). Entrepreneurs recognise how investors are surprised by the enthusiasm, passion, and programming pace of the young technologist (Rosales & Svensson, 2021). This all feeds a myth that the young are cognitively quicker and more capable workers.

The expulsion of more senior workers in Silicon Valley also has a pragmatic explanation related to the profit orientation of the organisations, especially start-ups. The main argument against older workers in start-ups is their seniority and higher costs related to their employment. Prioritising younger workers began mainly as a cost-cutting exercise, wherein older staff were increasingly replaced with younger and cheaper employees willing to do the same work for less money (Lyons, 2016). The technology industry thus excludes older and competent programmers who might be more selective in their choice of

workplace. They are more inclined to seek autonomy, stability, and good working conditions, instead of incentives (Rosales & Svensson, 2021). In 2014, Facebook and Apple surprised the world with their egg-freezing incentives for their female workers or worker spouses (Sydell, 2014). Egg-freezing would allow the workers to devote their young years to the company, delaying their maternity or paternity plans for later. While it could be a good option for women unsure of assuming maternity earlier in their lives, it also could act as social pressure for not doing it as it becomes part of the "culture fit" of the industry.

"Culture fit" is the idea that to be a good recruitment choice for the company, you should possess the same qualities as those already working there (Ajunwa, 2019). This has resulted in a highly homogenous workforce in Silicon Valley, comprised primarily of people with similar backgrounds, perspectives and experiences (Cook, 2020; Lyons, 2016). This homogeneity has been identified as one of the main problems of "toxic tech" (Cook, 2020; Rosales & Svensson, 2021). The idea of culture fit is so deeply embedded within the vocabulary of Silicon Valley that Google famously has its own word for it: Googley (Cook, 2020).

Wiener describes her struggle to fit in in the following words:

> … my team partners were all experts with the RipStik skate (waveboard). They used to skate through the offices, turning and crouching with the laptop on their hand, answering calls from clients with their own mobile phones.
>
> (2020, p. 80)

> We played carnival games, tossed miniature basketballs against the rims of miniature hoops. We cluster by the bar and have another round, two. Eventually, we're dispatched on a scavenger hunt across the city. We pour out of the building and into the street, spreading across rush-hour San Francisco, seeking landmarks. We made human pyramids in the center of Union Square, snapped each other's sweatbands, photographed ourselves mid-jump on the steps of an old, regal bank.
>
> (p. 102).

In its extreme forms, ageism in the workplace may push young workers to seek rescue in plastic surgery. The number of people in the technology industry visiting plastic surgeons for cosmetic procedures was already on the rise almost a decade ago (Scheiber, 2014). Clients apparently seek everything from Botox to filler injections and micro-needling to more invasive surgeries such as chin lifts and liposuction. They are doing it in the hope of competing with their younger counterparts. Ageism is also at play in activities such as Friday afternoon Nerf-gun wars, "walking meetings" or unconventional office space design (e.g., exercise balls as chairs, table tennis, candy walls with free sweets) (Lyons, 2016). One reason why companies design and organise their workspaces as playgrounds with ping-pong tables, restaurants, cinemas and gyms, is that employees are expected to spend the whole day at

the company, including their free time. This is obviously more attractive for younger workers without family obligations (see Rosales & Svensson, 2021).

Silicon Valley ageism: Digital products and services

The third dimension where we can identify mechanisms of expulsion of old age and older people is the materiality of ageism in the technology industry, which transcends the ideological and interpersonal ageism dimensions and manifests itself in technological products and services. Cook argues that behaviours and tendencies are translated into patterns, which then become "increasingly embedded, not only in the industry's culture, but also in its products" (Cook, 2020, p. 39). In this section, we argue that ageism engrained in the ideologies and myths, along with the expulsions of older workers from this industry, results in products and services which disfavour older adults or do not account for their needs, wishes and preferences.

Technology is often designed for the young, by the young, and the rest of us are left to catch up with the youth or at least relate to their preferences. This poses a real dilemma as we are all becoming increasingly reliant on technology for everything from buying groceries to accessing medical care. Poor user experience design may exclude people from important services and products. In connection with older users, this has been highlighted by researchers on many occasions and regarding different types of products (Gallistl et al., 2020). Stereotypes of older adults as digital immigrants, afraid of new technologies and lacking in skills, contribute to the creation of products which, in turn, reinforce those negative stereotypes. The youth-orientated design of digital products and services is a direct consequence of ageist ideologies in the industry, lack of diversity and low awareness of older user preferences in the teams developing new products.

According to Manor and Herscovici (2021), ageism operates through two patterns in UX (user experience) design. On the one hand, at the design level, there is a lack of awareness and understanding of the needs and difficulties of older users. On the other hand, at the management level, there is a lack of research about older users and training AI systems with older-user data. This youth-orientated design is short-sighted from a business standpoint. Middle-aged and older users likely have far greater purchasing power than smartphone-savvy teens. Yet, many of the most used platforms seem to disregard usability factors for all – from automatic teller machines (ATMs) that operate too fast for new users to get used to, to the application of everyday products and services that only fit the latest smartphones, usually not owned by older users (Petrie & Darzentas, 2017). Then we have disturbing targeted adverting based on age predictions, such as face recognition systems (Yu et al., 2019). For example, a woman in her late fertility years, trying to have children but with difficulties conceiving, is emotionally affected by targeted advertising for fertility programmes (Nudson, 2020) addressed to her based on predictions about her age and life stage.

In recent years, scholars have expressed concern about the way AI-driven technologies show hidden biases, such as sexism or racism, resulting in the exclusion and discrimination of members of marginalised groups (West et al., 2019). Studies have shown how face-recognition systems work poorly for women with dark skin (Buolamwini & Gebru, 2018) and that word embeddings – a framework used for text analysis in machine learning and neural language processes – exhibit female/male gender stereotypes to a disturbing extent (Bolukbasi et al., 2016). A recent analysis also shows that age-biased samples and tools used for constructing algorithms tend to exclude the habits, interests and values of older users and hence contribute to reinforcing already existing ageism in digital products and services (Rosales & Fernández-Ardèvol, 2019). Another study showed evidence that sentiment analysis, which is a popular machine-learning technique used to evaluate opinions expressed in text, disclosed significant age biases. Sentences with the adjective "young" were 66% more likely to be scored positively than identical sentences with the adjective "old" (Díaz, 2019, p. 6146). Also, in the area of face recognition, one of the most contested technologies in recent years, researchers discovered relevant differences in the outcomes of face-recognition models for predicting age and gender from photographs (Meade et al., 2019). The researchers used Convolutional Neural Networks (CNN), an advanced deep-learning technique. The model was trained on photos of celebrities from IMDb and Wikipedia, where their picture matched their age, as well as data for the general public from the UTKFace data set of face images. The results showed that age estimation was generally performing poorly on older age groups (60+), which is not surprising, as older people are a diverse group of individuals who age along different lines. Furthermore, images of older celebrities do not represent the general population. The lack of accuracy in age predictions could influence how users view themselves and older people in general. The fast-growing deployment of AI systems in contemporary societies thus reveals the new ways ageism will manifest in data-driven technologies and should thus be carefully monitored.

Discussion and conclusions

The available data, accounts and experiences of technology workers themselves, as well as expert opinions, suggest that ageism in the technology industry is alive and well. In this chapter, we have proposed a three-tier framework for conceptualising the phenomenon we labelled Silicon Valley Ageism. The framework arranges the analysis of Silicon Valley Ageism into three dimensions: (1) narratives, (2) work relations and workspaces and (3) digital products and services. We suggest that this framework can be used to analyse any type of bias in any industry and that the interrelations between dimensions can be further accentuated. The theoretical framework can serve as a facilitator for further critical research and empirical inquiries. It can furthermore provide a sound basis for tackling ageism from the policy perspective. The

World Health Organization's (WHO) large global campaign to combat ageism (WHO, 2021) recognises the IT sector as one where ageism hits very hard. Also, the recently issued WHO Policy Brief titled "Ageism in artificial intelligence for health" examines the use of AI in medicine and public health for older people, including the conditions in which AI can exacerbate or introduce new forms of ageism (WHO, 2022). This sends a strong signal that technology can have a powerful negative impact on older adults and hence needs to be critically assessed and thoughtfully designed.

The young age and the overall homogeneity of technology industry workers is a phenomenon which has already had sociocultural and economic consequences. The increasing number of individuals and organisations voicing their concern about the lack of diversity in this community shows that there is awareness of the issue. Despite this, the narratives, numbers and research we have presented in this chapter tell a different story. At the same time, in many industrialised countries, policies and practices of extending working lives are being proposed as a panacea for demographic change and changes in the labour market. The old question becomes valid again: how can this goal be attained when workers are being discriminated against at increasingly younger age? Indeed, age is being called the "silent career killer" in the technology industry (Dice, 2018). The concerted efforts of the European Union to improve the level of digital skills among European citizens under a policy framework of Digital Decade 2020–2030 (European Commission, 2021) could be thwarted in the face of what we have outlined here as Silicon Valley Ageism. Hence, the unabated consequences of ageism in technology industry go way beyond older IT workers' well-being and job prospects. They are relevant to almost all realms of our personal, professional, social and cultural lives living in connected data societies.

Indeed, Silicon Valley, as a geographical location for important technology industries, a sociocultural ecosystem, and a symbolic artefact, needs to be scrutinised and studied from a critical social perspective. In our chapter, we have focused on the expulsion of older workers more specifically, but Silicon Valley's homophily in terms of gender and race is another significant and already recognised fact which requires continued academic and advocacy-related attention. And finally, with the unparalleled rise in the impact of technology industry on our societies, the utter dominance of this sector in the entire global economic system, as well as the power of technology to create social unrest and polarisation, we can conclude that Silicon Valley needs a social theory, and it is time to start constructing it. Further development of already budding critical theory of Silicon Valley (see Cook, 2020; Rothstein, 2022), as well as re-visiting the earlier theoretical stances on the culture of Silicon Valley (see Castells, 1998), is needed to address the rising concerns about the harmful impacts of modern technology industry and its products on the workers, society at large and natural environment.

Note

1 The term "Unicorn-Start-up" refers to those companies with a valuation in excess of $1 billion.

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