Smartwatches and Society

A Sociological Inquiry into Technology, Power, and Class

Contributors:

Ashwin Rudraraju :- 2022101022
Ayush Sabhasad:- 2023115012
Tanish Taneja:- 2021112011

Perspectives Considered

1. Technological Determinism – Examining whether smartwatches actively shape human behavior or simply serve as passive tools.
2. Foucault's Panopticism – Analyzing how self-surveillance through health tracking influences daily routines and mental well-being.
3. Marxist Perspective – Understanding how wearable technology creates new consumer dependencies.
4. Digital Divide & Socioeconomic Impact – Looking at how access to smartwatches varies across different income groups and the resulting inequalities.
5. Political & Privacy Concerns – Exploring the regulations surrounding health data collection and the ethical concerns of surveillance. (Mumford's concept of mega machine)
6. Change in Perception of Time: Digital vs Analog – Studying how smartwatches have altered the way people perceive and interact with time compared to traditional analog watches.

Rationale and Motivation

Smartwatches have rapidly become integral to modern lifestyles, symbolizing the fusion of personal tech and daily routine. Devices like the Apple Watch exemplify how ordinary objects can evolve into powerful wearable computing tools. Their popularity is growing steadily — as of the early 2020s, about one in five U.S. adults reported regularly using a smartwatch or fitness tracker, with adoption rates higher among younger, wealthier, and more educated groups (Pew study finds fitness tracking is linked to education and wealth | Mashable). Globally, the wearable tech market has surpassed **1 billion connected devices** and is forecasted to exceed $70 billion by mid-decade (Future of Wearable Technology and Its Implications for E-Waste). A

primary reason for this rise is their **health and fitness monitoring** capabilities. Once seen as novelties, smartwatches now feature sensors that track heart rate, blood oxygen, sleep patterns, and more ([The Value of Smartwatches in the Health Care Sector for Monitoring, Nudging, and Predicting: Viewpoint on 25 Years of Research - PMC](#)). They offer early warnings for conditions like atrial fibrillation ([An Apple Watch a day keeps the doctor away? - PMC](#)), and have become valuable tools for promoting healthier habits through gentle nudges to move, stand, or breathe. Wearables are increasingly integrated into healthcare systems, with studies suggesting they could save hundreds of billions globally by supporting preventive care initiatives ([The Value of Smartwatches in the Health Care Sector for Monitoring, Nudging, and Predicting: Viewpoint on 25 Years of Research - PMC](#)).

Smartwatches also enhance **communication and connectivity**, functioning as an extension of the smartphone. They enable at-a-glance access to calls, texts, and notifications directly from the wrist, offering convenience when phones are out of reach ([Impact of Smartwatches on Communication & Tech Evolution](#)). Especially useful during meetings, workouts, or multitasking situations, these devices help users stay connected while minimizing disruption. By integrating messaging, social media, and scheduling apps, smartwatches allow people to manage professional and personal communications fluidly, alleviating the fear of missing out and discreetly maintaining productivity ([Impact of Smartwatches on Communication & Tech Evolution](#)).

Finally, smartwatches serve as tools for **personal data management and organization**. They handle contactless payments, navigation, music control, and daily reminders, streamlining everyday routines. Devices like the Apple Watch sync seamlessly with apps and cloud services, ensuring real-time updates of health metrics, schedules, and notifications. This feeds into the mainstreaming of the **Quantified Self** movement, where users track steps, heart rates, sleep, and app usage to set goals and modify behaviors ([Don't worry, the Apple Watch won't change your life… unless you want it to | The Guardian](#)). This intimate blending of technology and personal informatics reflects broader cultural values of health consciousness, productivity, and constant connectivity that characterize contemporary society.

Application of Sociological Frameworks

Modern technological phenomena like the smartwatch can be interpreted through various sociological lenses. This section applies four theoretical frameworks – Technological Determinism, Foucault's Panopticism, Marxist critique, and the Social Construction of Technology – to dissect whether smartwatches *shape* human behavior or *reflect* it, and how they intersect with issues of power, control, and social change.

Technological Determinism: Do Smartwatches Drive Social Change?

Technological determinism is the theory that technological development drives changes in society's structure and cultural values, independently of social influence. In other words, it suggests that tools and systems like the smartwatch shape how people behave and how society evolves. At first glance, the Apple Watch and similar devices seem like clear examples of this; they've introduced new routines (like checking one's health stats daily or responding to notifications instantly) that barely existed a decade ago. As one commentator noted at the Apple Watch's debut, *"The Apple Watch will make mainstream the hitherto minority obsession with the 'quantified self,'"* forecasting a future where constant self-tracking for fitness and productivity becomes the norm.

Indeed, in the years since, millions of people now strive to "close their rings" (the Apple Watch's daily activity goals) and feel pressure to respond instantly to a haptic buzz on their wrist, suggesting that these devices are guiding human activity patterns. This reflects a belief that the technology itself changes our lifestyles by promoting a *"relentless gathering of data"* aimed at making us *"leaner, fitter, happier, more efficient"*.

However, a purely deterministic view can be misleading. Critics argue that it's overly reductive to credit technology alone for such behavioral shifts. Sociologist Judy Wajcman and others warn against *"simplistic technological determinism"*, pointing out that tech-driven change is often rooted in human decisions and social context. In the case of smartwatches, the desire for constant connectivity and health monitoring arguably existed before the devices — smartwatches gained popularity *because* people were already looking for more convenient ways to manage wellness and communication in an increasingly fast-paced world.

If we examine *why* Apple created the Apple Watch, it becomes clear that it was responding to existing social needs: a stylish, functional accessory that could act as a fitness tracker, status symbol, and communication tool. So while smartwatches have undoubtedly influenced modern life — speeding up its pace and embedding digital routines — it's worth asking whether technology drove this, or if prevailing cultural priorities (like productivity, health consciousness, and the appeal of innovation) shaped the technology.

A historical parallel helps illustrate this debate. Lewis Mumford once described the **mechanical clock** as *"the real driver of the Industrial Revolution,"* structuring time and disciplining labor. Similarly, the smartwatch could be seen as a driver of the digital lifestyle revolution, intensifying 24/7 connectivity and data obsession. There is *"a whiff of technological determinism"* in the idea that because we have smartwatches, society inevitably becomes more surveilled, time-pressured, and optimized.

Yet it's crucial to recognize that human agency and social forces mediate this process. People *choose* to adopt these devices, and companies design them based on what they believe people want. Technological determinism offers a cautionary perspective about how gadgets can subtly nudge us into new norms, but it must be balanced against the reality that technology itself is born from social choices. In short, smartwatches have enabled and amplified behaviors like self-tracking, but they didn't emerge in a vacuum. They fulfill existing desires and will reshape society only as much as people and institutions permit.

Foucault's Panopticism: Self-Surveillance and Discipline on the Wrist

Foucault's notion of **panopticism** – drawn from Bentham's Panopticon prison – captures how surveillance is internalized. As one scholar notes, "Panopticism is Foucault's term for the internalisation of surveillance and cultural control…linked to…the panopticon…of Jeremy Bentham". In Bentham's design, a central guard watches cells by bright light, but prisoners cannot see the watcher; they **assume** constant observation. Foucault argued that modern power works the same way: the "discipline came through [the prisoners'] self-monitoring" more than external force, so that each "prisoner becomes his own guard". In short, subjects regulate themselves by anticipating the gaze, what Foucault calls *internalized surveillance*.

This dynamic is strikingly applied to personal health tracking. Tracy Isaacs (Fit Is a Feminist Issue) compares calorie-counting and step-tracking to a panoptic regime. After years of dutiful logging, she found she "**despise[d]**" tracking, recognizing it "functions very like the panopticon". Foucault's insight holds: the power lies not in an external authority but in our uncertainty about being observed. (Isaacs quotes Foucault: power arises 'from their ignorance about whether they were being observed'.) Feminist scholars stress that this surveillance is self-imposed – women, for instance, "exert this kind of self-discipline over their bodies". In Isaacs's view, food and fitness logs become internal monitors: they turn self-care into self-regulation, requiring us to "talk ourselves into disciplining, controlling and regulating ourselves".

Today's *wearable* devices extend this panoptic logic via technology. With heart-rate monitors in smartwatches, "a bright light is once again being thrown on our bodies," as Thomas McMullan writes in *The Guardian*. Sensors on our wrists quietly chart every step, beat, and calorie, much as the Panopticon's light exposed prisoners. McMullan notes that even without a visible guard, we **"feel scrutinised nevertheless"** by these metrics. The usual justification is health – echoing Bentham's creed, we are told "health preserved" – but this very rhetoric ("*health preserved*") is a Benthamite reformulation of control. In effect, smartwatches serve as portable surveillance towers: constantly sending data to apps and social platforms, they create a watchful environment where users self-discipline in the name of well-being.

The psychological and social effects confirm this panoptic influence. Smartwatches *nudge* us with alerts, rings, and badges: a 9 a.m. buzz can tell a user she has already met her exercise goal. One *FiveThirtyEight* author recounts her Apple Watch's triumphant message at 9 AM: **"You've passed your exercise goal… and the day has just begun!"**. Such rewards can become compulsive signals, dictating schedules and self-worth. Devices also add a social layer: many apps (Nike+, Fitbit challenges, insurance rewards) let friends compare step counts or share achievements. As sports psychologist Josie Perry observes, the "sticky element" of wearables is often the community, not the data – we compete and conform in groups. In practice, this means peers may shame or motivate us ("our poor friends ignore me these days", one user jokes about his relentless Fitbit use), and even trivial choices become subject to norms. Together, alerts and social feedback pressure users into continuous self-surveillance: norms about sleep, movement, or diet become internalized obligations. This blend of *self-care*

and surveillance has been called **"participatory surveillance."** We willingly share health data and accept nudges, effectively participating in our own monitoring. Fit Feminist blogger Sam Briggs notes the paradox: losing her Fitbit felt liberating to a friend who disliked the "monitoring [of] every move," while others see it as a crucial self-care tool. The difference, she argues, is perspective: to the one, the tracker is empowerment and data (helpful reminders); to the other, it is **a surveillance apparatus**. In their words, Fitbit and its peers can look like "body surveillance tools" – part of a **self-care Panopticon** where caring for one's body means constant oversight.

In sum, smartwatches and fitness trackers genuinely help many people improve their health. But they also embody Foucault's panopticism in digital form. By quantifying our bodies and broadcasting norms, they convert personal wellness into a regime of self-discipline. The gaze of the tower is replaced by the tiny buzz on our wrist, yet the effect is similar: we internalize an external standard and regulate ourselves continually. Even when tracking feels empowering, it carries this hidden side: **digital self-surveillance** consistent with Foucault's theories of power and discipline.

Marxist Perspective: Consumerism, Class Divides, and Dependency

When you look around at people on the street, in the gym, or even at work, it's hard to miss the growing number of smartwatches on their wrists. These gadgets, especially the Apple Watch, promise to make us healthier, more productive, and always connected. But if you take a step back and look through a Marxist sociological lens, you'll notice something deeper happening: these devices aren't just helping us—they're also making us more dependent on technology in ways we might not even realize.

Think about how much these watches encourage us to track and measure everything we do. From counting steps and monitoring heart rates to analyzing sleep and even managing stress, wearables have turned self-quantification into a daily ritual for millions (GWI, 2020). It's no wonder that nearly half of Americans now own some kind of health tracking device, with the numbers especially high among younger, city-dwelling, and more affluent folks (Rock Health, 2023). For many, the Apple Watch isn't just a tool—it's become a kind of digital companion. Some people even say they feel "naked" without it, and a surprising number sleep with their watch on (Ericsson ConsumerLab, n.d.). That feeling of incompleteness when the device isn't there? It's a sign of just how much we've come to rely on these gadgets to tell us how we're doing and, in a way, who we are.

It's easy to see the appeal. Lots of people enjoy looking at their data, and many say their smartwatch helps them feel more in control of their health and habits (Kadence, n.d.). But there's a flip side: all this tracking can also make us anxious. When you're constantly checking your stats, it's easy to start worrying about every little dip in your sleep score or every day you don't hit your step goal. The more advanced these devices get, the more they blur the line between helping us and watching us. In fact, a lot of users are now worried about where their health data goes and who gets to see it. About 60% of people who use wearable data services

say they're concerned about privacy, especially as more sensitive information is shared with third parties (Deloitte, 2021). So while we depend on these gadgets for reassurance, we're also uneasy about how much of ourselves we're handing over to the tech companies.

There's another layer to this dependency: the never-ending cycle of upgrades. Tech companies are always rolling out new features and designs, making last year's watch feel outdated even if it still works perfectly (Rock Health, 2023). This planned obsolescence keeps us coming back for more, deepening our attachment to both the device and the brand.

It's wild to think how quickly smartwatches have gone from luxury items to something many people feel they can't live without. They're not just telling us the time anymore—they're handling payments, delivering health alerts, and even calling for help in emergencies (GWI, 2020). For some, leaving the house without their Apple Watch feels as disruptive as forgetting their phone or wallet. It's a clear sign that this dependency isn't just pushed on us by clever marketing; it's something we've internalized and come to accept as normal.

From a Marxist perspective, this is a classic example of how capitalism weaves technology into our everyday lives, creating new kinds of dependency. The Apple Watch and similar devices promise freedom and control, but they also tie us more tightly to cycles of consumption, data sharing, and the demands of the market. As wearables become more "essential," it's worth asking: are we really gaining autonomy, or just trading one kind of dependence for another?

Social Construction of Technology (SCOT): Society Shapes the Smartwatch

Complementing technological determinist and Marxist interpretations, the Social Construction of Technology (SCOT) framework offers a distinct perspective: it shifts the question from how technology shapes society to how society shapes technology. SCOT theorists like Bijker and Pinch argue that technological artifacts do not follow a singular, inevitable path. Instead, their design, meaning, and adoption are shaped by the interpretations, values, and struggles of various relevant social groups (Pinch & Bijker, 1984). These groups influence the trajectory of a technology based on their needs, social meanings, and negotiations, ultimately determining which version of the technology stabilizes and becomes dominant, a process known as closure.

Applied to smartwatches, SCOT helps explain how different groups have shaped the evolution of these devices over time. As Verma (n.d.) illustrates, early digital watches like the Pulsar P1 (1972) were marketed as luxury items rather than tools for convenience. Gold-plated and expensive, they catered to elite tech enthusiasts and status-conscious consumers who attached symbolic value to the digital watch. The watch's function in this phase was less about timekeeping and more about representing social prestige. Thus, the design and pricing were not just technical decisions, they reflected the cultural and economic values of a particular social group. By the late 1990s, the busy professional emerged as a new relevant group. Samsung's SPH-WP10, introduced in 1999, was one of the first watch-phones, designed for business people seeking constant connectivity. Here, technological development was directed toward

solving a socially constructed problem: mobile communication without bulk. The shift from luxury to utility reflected in the device's lower price and practical features highlights how the demands of a new social group redefined what a "smart" watch should do (Verma, n.d.).

The early 2000s saw the rise of fitness and outdoor enthusiasts as another key group. Devices like the Garmin Forerunner 101 (2003) emphasized GPS tracking, battery life, and ruggedness. These priorities did not emerge from technological possibilities alone, but from the social practices of athletes and runners who valued performance data. SCOT thus helps us see how the smartwatch was shaped by and for a lifestyle grounded in monitoring and self-improvement (Pinch & Bijker, 1984; Sismondo, 1993).

With the launch of the Apple Watch in 2015, we see competing interpretations from multiple social groups—tech enthusiasts, fashion-conscious users, fitness communities, and health-conscious consumers—all shaping what the smartwatch should be. Apple initially marketed the device as both a fashion accessory and a digital tool, offering features ranging from customizable bands to app integration. However, early user feedback revealed that fitness tracking and notifications were the most valued functions. Apple responded by emphasizing health features in later models, a clear instance of interpretive flexibility giving way to closure - a point at which social consensus defines the dominant meaning and use of a technology (Bijker, 2008; Verma, n.d.).

Importantly, SCOT also recognizes that closure is not permanent. Technologies continue to evolve as new social groups emerge. For example, recent pushes by disability advocates and medical professionals have led to more inclusive design and advanced health sensors in smartwatches. These adaptations underscore how societal needs continue to co-author the form and function of wearable tech (Klein & Kleinman, 2020).

In contrast to determinist narratives that depict technology as an autonomous force, SCOT emphasizes the co-construction of technology and society. The smartwatch, in this view, is not a neutral device imposed on users but a socio-technical artifact reflecting negotiations among diverse social groups. Had different groups prevailed, such as luxury consumers over fitness users, the smartwatch today might look radically different (Verma, n.d.).

Ultimately, SCOT encourages us to see technology as open-ended and responsive to social forces. It underscores that the smartwatch's evolution—from elite accessory to everyday fitness tracker is not merely a story of technical advancement, but a mirror of shifting cultural values, lifestyles, and social power.

Comparative Analysis and Historical Context

To deepen our understanding, it's useful to compare the rise of smartwatches with earlier technological shifts in timekeeping and personal tech. History provides analogies (no pun intended) that help frame what is new and what is continuous in our adaptation to smart wearables. This section draws parallels with the transition from analog clocks to digital time,

examines E.P. Thompson's notion of time discipline in the industrial era, and invokes Thomas Kuhn's concept of paradigm shift to situate the advent of smartwatches in a broader narrative of technological revolutions.

From Clockwork to Digital: Time Discipline and Smart Timepieces

Before machines, Europeans spoke of concepts defined as dawn or "harvest time" since hours were elastic and tied to events. Industrial capitalism replaced this fluidity with what E. P. Thompson called time discipline: by the 1840s workers literally "sold" blocks of hours to the mill, and punctuality became a moral virtue. Alvin Chong notes that factory sirens, synchronized clocks, and wage records taught people to spend rather than pass time. The clock, once a church tower curiosity, turned into a social regulator emblematic of productivity.

LED- and LCD-driven wristwatches of the early 1970s, such as Casio's later game models, pushed precision to the second and put alarms, stop-watches, and split-timers on millions of wrists. Because these gadgets became cheap and child-friendly by the 1990s, entire generations internalized hyper-accurate scheduling. Digital beeps were personal factory whistles, teaching their wearers to chop the day into measurable micro-tasks.

Finally, the most recent innovation of the smartwatch closes the distance between body and schedule. Apple's Activity "Stand" ring vibrates if you sit 50 minutes, nudging you like an on-board foreman. Screen-time dashboards now itemize behavior by the minute, telling users how many "pick-ups" or notifications punctuated a day. Where the factory bell dictated from outside, the wearable disciplines from within, erasing any gap between private rhythms and social timetables.

Thompson argued that clocks implanted a mental metronome. Nowadays, alerts do the implanting for us. Knowledge-economy staff report norms of replying to email or Slack within an hour—even after work—turning every waking moment into potential labor. Productivity-app culture reinforces this constant accountability, promising to optimize time yet often expanding workloads instead. Scholars label the result a "temporal paradox". Despite digital tools save minutes per task, they also flood those minutes with still more tasks, leaving users feeling busier than ever.

Railroads once forced nations to invent standardized time zones; communities first resisted but soon found them indispensable to commerce. Pocket-watch adoption followed a similar arc. Such precedents suggest society can—and does—normalize each technological tightening of the temporal net.

Smartwatches thus operate in a double register. They intensify surveillance—both self- and employer-driven—by recording steps, heartbeats, and response times; yet they can liberate by letting people leave the desk, outsource reminders, or balance work with outdoor exercise. John Naughton observes that whether the Apple Watch is a shackle or an aid depends on how tightly you let it grip. Market data show that even after a 7 % shipment dip in 2024, Apple still leads a
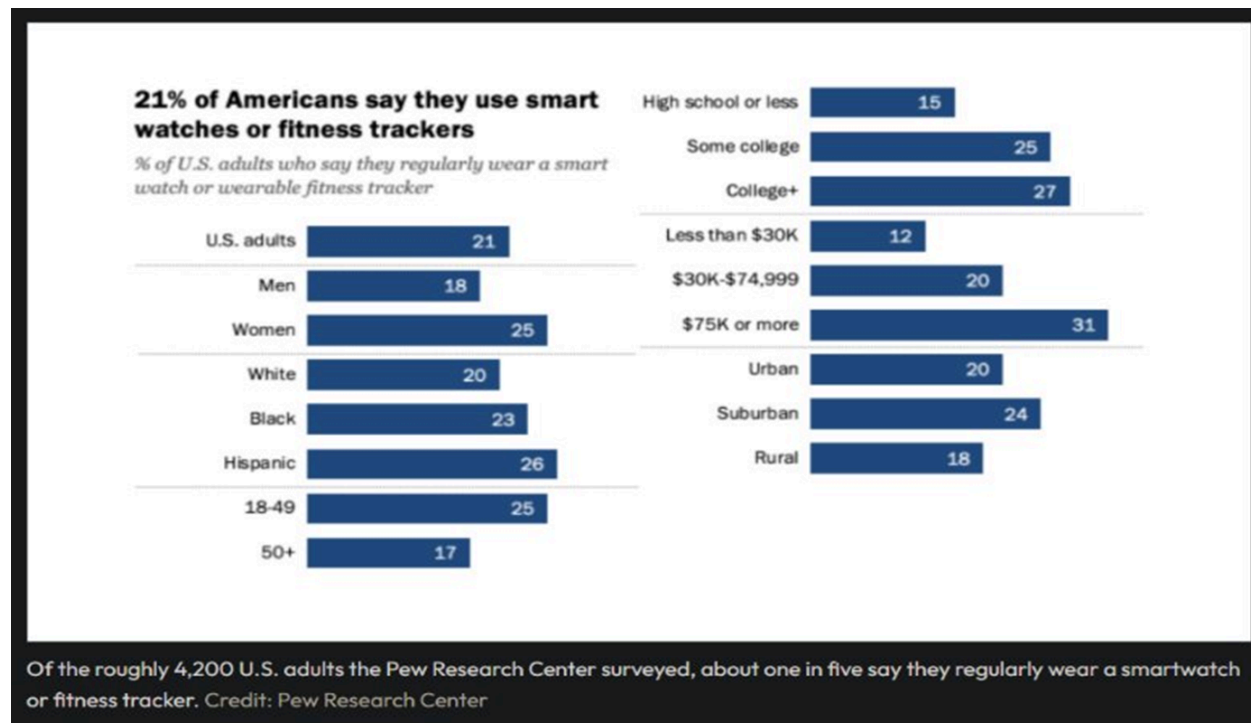
sector shipping over 120 million units annually, proof that many consumers accept—or embrace—this wrist-bound disciplinarian.

Socio-Economic and Political Impact

Technologies like smartwatches are never just technical toys; they exist within social and political structures. This section examines the broader socio-economic and political implications of the smartwatch proliferation. Key considerations include who benefits or is left out (demographic disparities and the digital divide), concerns around privacy and surveillance of personal data, and the ethics of how health data is used. Additionally, drawing on Lewis Mumford's notion of the *"megamachine"*, we explore how wearables might feed into large-scale systems of control and power. In essence, this is about situating the Apple Watch and its kin in the wider social machine: how do they reinforce or challenge existing inequalities and power relations?

The Digital Divide and Access Disparities

When someone glances at their Apple Watch, it might seem like a simple gesture—checking the time, a text, or perhaps a reminder to stand up. But from a Marxist sociological perspective, there's much more happening beneath that sleek glass surface. The Apple Watch isn't merely a

21% of Americans say they use smart watches or fitness trackers

% of U.S. adults who say they regularly wear a smart watch or wearable fitness tracker

U.S. adults	21
Men	18
Women	25
White	20
Black	23
Hispanic	26
18-49	25
50+	17

High school or less	15
Some college	25
College+	27
Less than $30K	12
$30K-$74,999	20
$75K or more	31
Urban	20
Suburban	24
Rural	18

Of the roughly 4,200 U.S. adults the Pew Research Center surveyed, about one in five say they regularly wear a smartwatch or fitness tracker. Credit: Pew Research Center

gadget; it's a product of our economic system that reflects and reinforces class divisions, consumer habits, and the hidden labor powering our digital world.

Smartwatches, particularly the Apple Watch, come with a hefty price tag. They are predominantly used by those with higher incomes and education levels. According to a 2020 Pew Research Center survey, about 31% of Americans earning $75,000 or more regularly use smartwatches or fitness trackers, compared to only 12% of those earning below $30,000. College graduates are also more likely to adopt smartwatches than those with only a high school education. Gender and ethnicity play a role as well: 25% of women use these devices compared to 18% of men, and Hispanic adults report higher usage rates (26%) than white (20%) or Black adults (23%) (Pew Research Center, 2020). These patterns are reflected in more recent data as well: by 2023, an estimated 26.4% of the U.S. population—about 89.6 million people—were wearable device users, with Apple holding over 20% of the global market share (Coolest Gadgets, 2025). The pattern is undeniable: smartwatch ownership has become a marker of middle- and upper-class status. This disparity extends beyond mere status—some employers and health insurers now offer benefits through wearables, meaning those who can't afford one might miss out on tangible advantages, further widening health and wealth gaps (Pew Research Center, 2020).

The implications run deeper than mere ownership patterns. Apple markets its Watch not simply as a tool but as an essential lifestyle accessory. When the Apple Watch debuted, the company released a gold Edition model priced at $10,000 to $17,000, positioning it as a luxury status symbol. This exemplifies what Marx termed "commodity fetishism"—where we divorce products from their human origins and imbue them with almost magical significance. The industry's push for constant upgrades isn't coincidental. Tech companies thrive on this cycle of perpetual replacement, even when last year's perfectly functional watch ends up discarded (Reecollabb, n.d.). With less than 18% of e-waste properly recycled, these consumption patterns carry serious environmental consequences (Forti et al., 2020).

Behind these sleek devices lies a stark reality about their production. Far from Silicon Valley's gleaming campuses, assembly lines in Chinese factories tell a different story—one of grueling hours, minimal pay, and harsh conditions. Investigations at Apple supplier Foxconn's Chengdu factory have uncovered widespread issues: excessive use of dispatch workers, mandatory overtime, workplace bullying and harassment, illegal recruitment of vocational students, and discrimination in hiring based on ethnicity, religion, and gender (China Labor Watch, 2023; Business & Human Rights Resource Centre, 2024). These findings are echoed by broader research showing that electronics workers in China often face low wages, long hours, wage theft, lack of social benefits, and even hazardous working environments (China Labor Watch, 2023; Business & Human Rights Resource Centre, 2024; SOMO, 2025). Reports have also documented cases of underage labor, improper disposal of hazardous waste, and workplace accidents resulting in serious injury or death (Saude Business, 2012; Wikipedia, 2025).

While tech giants and shareholders reap enormous profits, assembly workers see little benefit—a classic example of what Marx called surplus value extraction, where those at the top prosper while those doing the most demanding work receive the least reward. Apple's supply

chain, which relies heavily on Chinese manufacturing, has repeatedly come under scrutiny for failing to prevent labor abuses, despite public commitments to corporate social responsibility (SOMO, 2025; Wikipedia, 2025).

An Apple Watch on someone's wrist broadcasts specific social messages: tech-savvy, health-conscious, forward-thinking. This creates subtle but real pressure to conform, with those unable to participate feeling left behind. Meanwhile, we overlook fundamental questions about health inequality and whether individual tech solutions can address systemic issues.

So when you spot someone checking their Apple Watch, consider the broader implications. It's more than just a gadget—it's a lens through which we can examine societal dynamics of ownership, production, and influence. A Marxist analysis pushes us beyond surface-level critique to imagine how technology could better serve collective well-being rather than just driving profit and status.

Privacy, Surveillance, and the "Megamachine"

On-wrist sensors record heart rhythms, sleep cycles, GPS traces and even ambient sound. When these stores sync to the cloud, they become hacker targets as unsolicited malware-laden watches mailed to U.S. soldiers and blue-snarfing attacks show [how easily location and biometrics can leak](#). The military learned this the hard way when Strava's public heat-map [exposed patrol routes at secret bases](#). Civilian trust is eroding too; 58 % of consumers now fear being ["hacked and tracked" by their devices](#)

Aggregated smartwatch metrics can illuminate population-level cardiac trends, yet individual ownership is murky. In the United States, [most app-generated health data falls outside HIPAA](#) unless a covered entity (e.g., a hospital) is involved, allowing companies to share or sell it under their T&Cs. A new fact-sheet also warns that employer-mandated wearables could also collide with anti-discrimination law [if biometric readings are treated as medical exams](#).

[Mumford argued](#) that once technology becomes infrastructural, opting out exacts a social cost. Constant self-tracking normalises corporate and state watching, turning users into reliable cogs that are crucial to feed vast prediction engines. Scholars note that [women, in particular, are sceptical](#): only 43 % share smartwatch data with clinicians, reflecting a broader "trust gap" in data governance. The result is a feedback loop where [unequal trust may deepen health inequities](#).

Wearables already [confer discounts with insurers](#) such as Aetna and Kaiser and failure to log daily steps can cost points or premiums. Employers pilot productivity-tracking bands that monitor fatigue and location, raising fears of workplace surveillance creep. As incentives harden into requirements, those who cannot afford or prefer not to wear a device [risk exclusion – a classic megamachine dynamic.](#)

However, the industry is experimenting with privacy-by-design. [Apple](#) processes heart-rhythm detection and fall alerts on-device, routing only event flags to the cloud and wrapping

server-calls in "Private Cloud Compute". [Academic work on local differential privacy](#) shows how statistical value can be extracted without transmitting raw streams. Yet ethicists stress that technical fixes must be paired with stronger deletion rights, data-portability standards, and community oversight.

Conclusion

Smartwatches, epitomized by the Apple Watch, represent a pivotal intersection of technology and society. Far beyond mere gadgets, they act as both agents of change and mirrors of cultural values. These devices illustrate the dynamic interplay between technological determinism and social constructivism, simultaneously shaping behavior and being shaped by social needs and feedback.

Rather than a simple cause-effect relationship, smartwatches reflect a reciprocal influence. They have transformed how we communicate, monitor health, and manage time, driving constant connectivity and self-quantification. Yet, their evolution has also been molded by cultural expectations and user demands, demonstrating the social construction of technology. The future of wearables will hinge as much on collective social choices as on technological innovation.

These devices blend empowerment with discipline. They democratize access to health data and offer convenience and safety while channeling Foucault's notion of the panopticon, inviting users into regimes of step counts, notifications, and self-surveillance. Whether this fosters healthy habits or anxiety is a negotiation between designers and users.

Smartwatches also highlight social inequality. Early adopters tend to be affluent and educated, meaning the benefits and drawbacks of these devices are unevenly distributed. As wearables integrate further into healthcare and daily norms, ensuring equitable access and digital literacy will be essential to avoid widening the digital divide.

Culturally, there has been a normalization of intimate data tracking—once niche, now mainstream. With shifting notions of privacy and etiquette, society must continually reassess what it means to be reachable and monitored. Additionally, the consolidation of personal data within corporate ecosystems reflects Mumford's concept of the megamachine, where technology risks subsuming human interests unless guided by ethical practices, transparent policies, and public dialogue.

In weighing their empowering versus constraining effects, smartwatches enhance human capacities while tethering us to new digital obligations and oversight. The challenge lies in managing this balance through responsible design, informed education, and inclusive policy. Smartwatches are both products and producers of modern culture, and how we navigate their dualities will shape whether they contribute to healthier, fairer societies, or become another cautionary tale of unchecked tech optimism.

Bibliography

Demanding Change. (2020, December). *Technological determinism*. Demanding Change. https://demandingchange.blogspot.com/2020/12/technological-determinism.html

u/shockolate. (2024, April 23). *Did getting an Apple Watch change your life?* Reddit. https://www.reddit.com/r/AppleWatch/comments/1gxourq/did_getting_an_apple_watch_change_your_life/

Elashry, F. (2019). Expressive wearables: Fashioning the body as a site of digital data production. *International Journal of Mobile Human Computer Interaction, 11*(3), 1–17. https://www.igi-global.com/article/expressive-wearables/237170

Naughton, J. (2008, May 11). *Our own devices*. Memex 1.1. https://memex.naughtons.org/page/15/

iManager Publications. (n.d.). *Technological determinism: An evaluation*. iManager Publications. http://www.imanagerpublications.com/article/3485

Singapore Management University. (2023, July). *Apple: Changing the world one device at a time*. Singapore Management University. https://business.smu.edu.sg/sites/business.smu.edu.sg/files/2023-07/Apple_article.pdf

Core77. (2008, June 4). *Technological determinism isn't so groovy anymore*. Core77. https://www.core77.com/posts/9936/Technological-determinism-isnt-so-groovy-anymore

South African Journal of Bioethics and Law. (2022). *Panopticism, digital surveillance and Adam Smith's invisible hand: Ethical implications*. SAJBL, 15(1). https://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1445-73772022000100002

Isaacs, T. (2012, September 6). *Tracking and the panopticon*. Fit Is a Feminist Issue. https://fitisafeministissue.com/2012/09/06/tracking-and-the-panopticon/

McMullan, T. (2015, July 23). *What does the panopticon mean in the age of digital surveillance?* The Guardian. https://www.theguardian.com/technology/2015/jul/23/panopticon-digital-surveillance-jeremy-bentham

Weiss, S. (2015, October 22). *How my fitness tracker turned me against myself*. FiveThirtyEight. https://fivethirtyeight.com/features/how-my-fitness-tracker-turned-me-against-myself/

Peterson, E. J. (2021, July). *On the tyranny of the clock*. https://elizabethjpeterson.com/2021/07/on-the-tyranny-of-the-clock/

Wajcman, J. (2018, March 27). *Time poverty amidst digital abundance*. The Interval. https://theinterval.org/salon-talks/02018/mar/27/time-poverty-amidst-digital-abundance-wajcman

Public Books. (2019, February 12). *Siri, why am I so busy? An interview with Judy Wajcman*. Public Books. https://www.publicbooks.org/siri-why-am-i-so-busy-an-interview-with-judy-wajcman/

University of Chicago Press. (2014). *Pressed for time: The acceleration of life in digital capitalism*. https://press.uchicago.edu/ucp/books/book/chicago/P/bo19085612.html

Don't worry, the Apple Watch won't change your life… unless you want it to. (2015, March 15). *The Guardian*. Retrieved from https://www.theguardian.com

Verma, R. (2021). Evolution of smartwatches through the lens of social construction of technology. *Medium*. Retrieved from https://vermaricha.medium.com

Impact of smartwatches on communication & tech evolution. (n.d.). *Fila Time USA Blog*. Retrieved from https://usashop.filatime.com

An Apple Watch a day keeps the doctor away? (2022). *PMC*. Retrieved from https://pmc.ncbi.nlm.nih.gov

Tracking and the panopticon. (2012, September 6). *Fit is a Feminist Issue*. Retrieved from https://fitisafeministissue.com

The security risks of smartwatches. (n.d.). *Spotter Up*. Retrieved from https://spotterup.com

Pew Research Center. (2020). *Wearable Technology Ownership and Use in the United States*. Mashable. Retrieved from: https://mashable.com/article/pew-research-apple-watch-fitness-tracker

Reecollabb. (n.d.). *Future of Wearable Technology and Its Implications for E-Waste*. Retrieved from: https://reecollabb.com/future-of-wearable-technology

Forti, V., Baldé, C. P., Kuehr, R., & Bel, G. (2020). *The Global E-waste Monitor 2020*. United Nations University. Retrieved from: https://globalewaste.org/

Business & Human Rights Resource Centre. (2024). *China: Working conditions at electronics factories remain concerning*. Retrieved from: https://www.business-humanrights.org/en/latest-news/china-working-conditions-at-electronics-factories-remain-concerning-with-reports-of-continuous-labor-rights-violations-at-apples-suppliers-pegatron-and-foxconn

China Labor Watch. (2023). *Investigation of an Apple Supplier: Chengdu Foxconn Report in 2023*. Retrieved from: https://chinalaborwatch.org/investigation-of-an-apple-supplier-chengdu-foxconn-report-in-2023/

SOMO. (2025). *Apple's failures in due diligence and workers' rights protection*. Retrieved from: https://www.somo.nl/failures-in-due-diligence-and-workers-rights-protection/

Saude Business. (2012). *Do we care more about a New iPhone than working conditions in China?* Retrieved from:
https://www.saudebusiness.com/artigos/do-we-care-more-about-new-iphone-working-conditions-china/

Wikipedia. (2025). *Apple supply chain*. Retrieved from:
https://en.wikipedia.org/wiki/Apple_supply_chain

Coolest Gadgets. (2025). *Wearable Devices Statistics By Usage, Revenue and Facts (2025)*. Retrieved from: https://www.coolest-gadgets.com/wearable-devices-statistics/

Deloitte. (2021). Why consumers—and doctors—are wary about wearable data.
 PDF link
 Web summary

Ericsson ConsumerLab. (n.d.). ConsumerLab report on wearable technology and IoT.
 Full report

GWI. (2020). Wearable Tech & Consumers' Wellbeing.
 Related review article
 (Direct access to the GWI report may require a subscription; the linked article reviews consumer wellbeing and wearables.)

Kadence. (n.d.). The Future is Wearable: Understanding Consumer Behaviour in the World of Wearable Technology.
 Kadence blog

Rock Health. (2023). Put a ring on it: Understanding consumers' year-over-year wearable adoption patterns.
Rock Health article

Verma, R. (n.d.). *Evolution of smart watches through the lens of social construction of technology*. Medium.
https://vermaricha.medium.com/evolution-of-smart-watches-through-the-lens-of-social-construction-of-technology-b377f142bf42

Bijker, W. E. (2008). *Technology, social construction of*. In G. Ritzer (Ed.), *The Wiley Blackwell Encyclopedia of Sociology*. https://doi.org/10.1002/9781405186407.wbiect025

Klein, H. K., & Kleinman, D. L. (2020). The social construction of technology: Structural considerations. *Philosophical Papers*. https://philpapers.org/rec/KLETSC-5

Pinch, T. J., & Bijker, W. E. (1984). The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. *Social Studies of

Science, 14(3), 399–441. https://doi.org/10.1177/030631284014003004

Sismondo, S. (1993). Some social constructions. *Social Studies of Science, 23*(3), 515–553.

Nielsen, E. (2024, November 30). The security risks of smartwatches. *Spotter Up*.
https://spotterup.com/the-security-risks-of-smartwatches/

Hern, A. (2018, January 28). Fitness tracking app Strava gives away location of secret US army bases. *The Guardian*.
https://www.theguardian.com/world/2018/jan/28/fitness-tracking-app-gives-away-location-of-secret-us-army-bases

Deloitte. (2023). *Tech companies have a trust gap to overcome—especially with women*.
https://deloitte.wsj.com/sustainable-business/tech-companies-have-a-trust-gap-to-overcomeespecially-with-women-2e50a5cc

Lee, K. (2015, July 24). Wearable health technology and HIPAA: What is and isn't covered. *TechTarget*.
https://www.techtarget.com/searchhealthit/feature/Wearable-health-technology-and-HIPAA-What-is-and-isnt-covered

Equal Employment Opportunity Commission. (2024, December). *Wearables in the workplace: The use of wearables and other monitoring technology under federal employment discrimination laws* [Fact sheet].
https://www.eeoc.gov/sites/default/files/2024-12/Wearables_Fact_Sheet_V10_508FINAL.pdf

LibrarianShipwreck. (2024, June 14). "The ultimate religion of our seemingly rational age" – Revisiting Mumford's "megamachine". *LibrarianShipwreck* blog.
https://librarianshipwreck.wordpress.com/2024/06/14/the-ultimate-religion-of-our-seemingly-rational-age-revisiting-mumfords-megamachine/

Peres da Silva, J. (2023, May 4). Privacy data ethics of wearable digital health technology. *Center for Digital Health, Brown University*.
https://cdh.brown.edu/news/2023-05-04/ethics-wearables

Hicks, M. L. (2022, May 17). Which insurance companies offer discounts on fitness trackers and smartwatches? *Android Central*.
https://www.androidcentral.com/wearables/which-insurance-companies-offer-discounts-fitness-trackers-smartwatches

Apple Inc. (2024). *Privacy – features*. https://www.apple.com/privacy/features/

Zhao, F., & Fan, S. (2024). Protecting infinite data streams from wearable devices with local differential privacy techniques. *Information, 15*(10), 630. https://doi.org/10.3390/info15100630

Apple Inc. (2025a). *Track daily activity with Apple Watch*.
https://support.apple.com/guide/watch/track-daily-activity-apd3bf6d85a6/watchos

Apple Inc. (2025b). *Use Screen Time on your iPhone or iPad*.
https://support.apple.com/en-gb/108806

Bouman, M., & Meijers, T. (2023). S.O.S. time! Paradoxes of digital time experience among
emerging adults. *New Media & Society, 25*(4), 789–812.
https://doi.org/10.1177/20515707231155785

Chong, A. (2020, July 21). *Time consciousness and discipline in the Industrial Revolution*.
Watches by SJX.
https://watchesbysjx.com/2020/07/time-consciousness-and-discipline-industrial-revolution.html

Counterpoint Research. (2025). *Global smartwatch shipments in 2024: Market declines for first
time*. https://www.counterpointresearch.com/insight/global-smartwatch-market-in-2024/

Dagan, K. (2019, May 14). *The time paradox: How we lose by saving time*. Medium.
https://medium.com/swlh/the-time-paradox-how-we-lose-by-saving-time-789e31c92656

Hill, D. (2025, February 10). *How to set response-time expectations for communication
channels*.
https://www.davehilljr.com/blog/setting-response-time-expectations-for-communications-channel
s

Hodinkee Editors. (2018, November 26). *Four revolutions: A concise history of the LED watch*.
Hodinkee. https://www.hodinkee.com/articles/four-revolutions-led-watches

Lau, J. (2024, December 2). *The best productivity apps in 2025*. Zapier.
https://zapier.com/blog/best-productivity-apps/

Lapowsky, I. (2021, January 5). Email and Slack have locked us in a productivity paradox.
Wired. https://www.wired.com/story/email-slack-productivity-paradox

Naughton, J. (2015, March 15). Don't worry, the Apple Watch won't change your life… unless
you want it to. *The Guardian*.
https://www.theguardian.com/commentisfree/2015/mar/15/apple-watch-wont-change-life

Parkin, S. (2025, May 2). Space Invaders on your wrist: The glory years of Casio video-game
watches. *The Guardian*.
https://www.theguardian.com/games/2025/may/02/space-invaders-casio-video-game-watches

Union Pacific Railroad. (n.d.). *U.S. railroads invent standardized time zones*.
https://www.up.com/customers/track-record/tr031020-time-zones.html

WatchMuseum. (2021). *The intriguing history of pocket watches*.
https://watchmuseum.org/take-a-look-at-history-of-pocket-watch/