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Article

Three Disruptive Models of New Spatial Planning: “Attention”, “Surveillance” or “Sustainable” Capitalisms?

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Abstract: This paper compares and contrasts three disruptive models of potential and actual new kinds of spatial planning. These include “seasteading”, “smart neighbourhoods” and “renewable spatial systems”. Each is labelled with distinctive discursive titles, respectively: “Attention Capitalism”; “Surveillance Capitalism” and “Sustainable Capitalism” denoting the different lineaments of each, although they all have their origins in the Silicon Valley techno-entrepreneurial milieu. In each case, while the path dependences of trajectories have diverged the progenitors were often erstwhile business partners at the outset. The paper is interested in qualitative methodology and proposes “pattern recognition” as a means to disclose the deep psychological, sociological, political and economic levels that inform the surface appearances and functions of the diverse spatial planning modes and designs that have been advanced or inferred from empirically observable initiator practice. “Dark Triad” analysis is entailed in actualising psychological deep structures. Each of the three models is discussed and the lineaments of their initiators’ ideas are disclosed. Each “school” has a designated mentor(s), respectively: academic B. J. Fogg and venture capitalist Peter Thiel for “Attention Capitalism”, “smart city” planner Dan Doctoroff for “Surveillance Capitalism” and “renewable engineer” and Elon Musk for “Sustainable Capitalism”, the eventual winner of this existential “dark versus light triad” urban planning contest.



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Keywords: attention; surveillance; sustainable cities; dark triad; light triad; gigaproject

1. Introduction

In this contribution, we turn our attention to the question of most appropriate conceptual models to drive contemporary spatial development planning at urban, regional and inter-state levels. In previous papers [1–3] we have been critical of “smart city” evangelism, which is what characterises most of the policy press and academic research literature (for a mild rebuke [4], more recently [5–9]) although contrasts have been drawn by a few more between the technophilia of “smart” and the sociophilia of “sustainable” [10,11]. One of the few that tries to connect the two spheres is Yun and Lee [12]. They argue that the principal aim of “the 4.0 Industrial Revolution” is to solve inherent problems of the smart city while simultaneously reducing its expenditure and improving its quality of life. To accomplish this, they advocate the reduction of city expenses by “platformisation” (see also [1]). This means recognising the enhanced GDP value from digital production (over consumption). Value creation is then conceived as a city platform built upon connectivity; its value drastically increases through integrating 4.0 Industry’s online to offline convergence—otherwise “digital twins”—platform. This involves the “smart” city reflecting on its own reality in terms of its digital twin image in the “cloud” as the information host. Such connectivity can occur once complete information becomes accessible by interactive citizen participation through smartphones. This is defined as the “edge” element of the image-reality interface which integrates it into the whole city image available on the “cloud”. At this point, “self-organization” can theoretically occur as the ideal linkage between the city and citizens.

The paper proceeds by elaborating three models of “platform” informatisation that emanate from what were, less than twenty years ago, start-ups that have, by 2020 reached gargantuan corporate scale. On the two ends of this spectrum are two contemporary “varieties of capitalism.” Within one of the polarities elaborated by Hall and Soskice [13], lies a “neoliberal” or as they termed it, “liberal-market” model of capitalism. This they juxtaposed to a “coordinated market” model. The first was then seen as characterising the institutional form of the Thatcher and Reagan economic reforms of the 1980s based on deregulation, privatisation and liberal industrial relations. The second was seen as “Continental” or based on Germanic and Nordic “corporatism” based on regulated competition, state intervention and co-determination of industrial relations. While recognising the superiority of the latter over the former in terms of economic stability, state intervention in the economy and mitigation of welfare and wage disparities (including spatial development), it has to be acknowledged that some drift towards elements of the former institutional emphases, with some privatisation, liberalising of markets and weakening of aspects of managed welfare has occurred in the past two decades. Accordingly, this contribution examines varieties of neoliberal/liberal market regimes that became hegemonic, not least with policy makers, through the “entrepreneurialism,” deregulation, “informatisation” and “financialisation” of socio-economic relations of the neoliberal era.

Methodological and Research Design Issues

The Research Method worked with in this study is called “pattern recognition”. This seeks to identify underlying forces in research-derived processes as developed in complexity theory (e.g., [14]). It occurs in three ways in this paper. First it proposes and tests in depth propositions about theoretical categories or conceptual frameworks. It then explores the extent to which these deeper structures work consistently both from a validity viewpoint, but also crucially, a critical viewpoint. The underlying criterion is “consistency”, i.e., if, for example, ideological positions are inferred or observed, is evidence to support or refute them discovered in evidence, presumptions or actions? For example, in regard to “Surveillance” as a framework, is it data-driven or not; is it “neoliberal” in its assumptive world or not; is it broadly “libertarian” or not; is it “individualistic” or not; is it “green” or not and in what ways, is it “reductive” in its view of its “mission” or not; is it “inclusive” or not and so on? This is applied generally in the first part of the paper and more granularly in the last part of the paper where research design also means the three firm profiles are being interrogated for their strong (e.g., first two cases) or weaker but still-on balance—mainly if not wholly aligned “consistencies”. This allows for interpretation of human motivation in relation to social constraint (e.g., Musk is generally “green” in his worldview but shows characteristics of “dark triad” psychology in his narcissism and occasional Machiavellianism).

Methodologically, “pattern recognition” involves identifying “deep structures” not easily visible beneath surface data accounts. While central to complexity theory, where it is described as “the automated recognition of patterns and regularities in data” [15]. An often-quoted instance is classification. By setting up theoretically derived categories unexpected or even “strange” patterns can emerge. The “Dark Triad” used in this paper is an example. Methodologically, data (e.g., verbal responses) can be analysed according to classificatory elements and sub-elements (e.g., Narcissism) then compared and contrasted with other classificatory elements (e.g., Psychopathy). In qualitative research, interrogation of narratives is designed to enable identification of otherwise hidden sub-structures, for example, “callousness” which might underlie pathological intent or practice towards others displaying “quiescence”, e.g., residents in a threatened or deprived neighbourhood. The aim of this exercise is to demonstrate which of three “ideal types” on the spectrum is superior in terms of values such as individual and social autonomy, relative economic security and sustainable, healthy work-life balance. The paper proceeds by, first, elaborating the three models in question, naming actors closely associated with them and their personality types and interests by reference to so-called “dark and light triad” analysis. Second, it explains a

qualitative methodology we term “pattern recognition” interrogation of deep structures that inform both ideologies and recipes for action and change [14,16,17]. Then finally, it anatomises variants of spatial development implications of the “triad analysis” and “pattern recognition” that are putatively or actually realised in urban, regional and inter-state form to ascertain the most appropriate for advanced “anthropogenic” or “sustainable” living and working. A brief Conclusions section completes the contribution.

2. Three Neoliberal Models: “Attention”, “Surveillance” and “Sustainability” Capitalisms

The three conceptual models to be discussed in this brief contribution are the following. First, we delineate, categorise and elaborate the three socio-cultural models in question, equating each with its appropriate position on the “dark-to-light” spectrum of personality and ideological traits. In reality, since there has been some recantation of the first to be discussed, it moves most and effectively becomes absorbed by the twin poles of the spectrum. However, it begins as an extreme liberalist conviction that is usefully tested out by the analytical framework mobilised before veering towards a moderation of its original position.

2.1. Attention Capitalism

It is referred to here as “Attention Capitalism” after [18–20] though it can be discerned in the early thought of Herbert Simon [21]:

“... in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients.”

Thus, what is Attention Capitalism? An article by urban planner Georg Franck [22] blames “The Economy of Attention” on the increasing significance of attention in a knowledge society and economy saturated by exponentially increasing dataflows and information-feeds. The four key aspects of Franck’s theory of the “attention economy” are the following: first, the importance of the fundamental human desire for attention; second, the emphasis on parallels between attention and money; third, the self-reproducing character of attention capital, which “earns” interest rather as money does; and fourth, the connections between the economy of attention and the expanding impetus towards everyone aspiring to “celebrity” status and becoming a “brand”. To unpack these traits a little after Van Krieken [23]: first, Franck [24–26] is in agreement with Simon’s belief “attention” has the trait of scarcity (an economic value) but attention is also a basic human need (a psychological value). Commoditisation of the psychological value by exploitation of the economic value of attention is the definition of “celebrity”. Second, unlike intangible abstractions such as “human capital” or “social capital,” attention takes on metric value in the form of concrete and comparable “currency” units such as “likes”, “recommendations”, “follower” “influencer”, “engager” and so on, typical of social media rating algorithms in Facebook, Instagram You Tube, etc. Third, being a celebrity is sufficient to earn an income from attention capital: attention breeds more attention. Paying attention to a celebrity who returns a “like” is correspondingly value-enhancing for the “follower” too. In this transactional landscape the equivalent of the stock exchange, banks and the financial system are the media (mass and social). Fourth, and finally, as increasing amounts of attention are devoted to celebrity and consumption so commoditisation mutates into “brands”. This produces a new form of social inequality between celebrities who receive a surplus of attention and those who get little attention (non-celebrities). As we show later, this explains the addictive power of social media, which seduces its “influencers” and “followers” with this ongoing and ever-intensifying struggle for attention. The best representation of the monetisation of taste, appropriately inverted to escape “brands” is Cayce Pollard, the “influencer” in [13]:

The novel’s protagonist, Cayce Pollard, isn’t a hacker but a brand strategist who’s been hired by a viral-marketing think tank for a commercial research project ... she

practices a kind of semiotic hygiene, dressing only in clothes, 'either black, white, or grey,' that 'could have been worn, to a general lack of comment, during any year between 1945 and 2000.' She treasures in particular a black MA-1 bomber jacket made by [Japanese firm] Buzz Rickson'sThere is now a range of 'Buzz Rickson's x William Gibson' military outerwear. Meanwhile, a marketing think tank modeled on the one in the novel, popularized Cayce's fashion philosophy in the form of 'normcore,' a trend—forecast, then real—based on the idea of secretive, informed, intentional blankness. Normcore influenced design more broadly, shaping the aesthetics of companies like Everlane and Uniqlo. The boundary between fiction and reality turned out to be even blurrier than Gibson had thought. He had rewritten the code himself. [4]

For Franck [16] an even better example of “attention capitalism” is precisely what the readers of this journal do every day, the work of science and scholarship. The value of academic work is largely measured by the amount of attention it receives: the citation rate of the journal in which an article is published, the number of citations the article itself receives, the status of a book's publisher and the reputations of the book's reviewers. Thus, citation is essentially a fee in attention capital paid for the license to use the cited author's information and ideas. Competition means there is a strong motivation to capture academic attention with the catchy title and cover; the attention-grabbing event; the radical critique of established positions; the provocative stance and preferably, the association with a recognised scholarly celebrity. As van Krieken [27] concludes in his review of Franck's schema: “in the age of social media, this space has expanded enormously to include blog posts, Tweets, Wikipedia, Facebook, LinkedIn and Pinterest mentions. In this sense, academic life is a key example of the fundamental logic of 'celebrification'.

2.2. Origins and Recent Practice of “Economy of Attention”

Now that a clear definition of “attention capitalism” has been provided, the next steps are to review its origins in recent practice, next to the media forms it has taken and various recantations of its ethos before interpreting—particularly—the implications for Franck's analysis for his take on spatial development planning. On the last itemised, given a key trait of the Dark Triad which we conduct in the third section, is Narcissism and especially its vital expression, which is “vanity”. It might be thought the contemporary work of “starchitect” planners is a prime candidate for egocentric treatment. But before that, we turn attention to the work of Stanford psychologist B.J. Fogg's [28] implementation of “digital attention capture” at the Persuasive Technology Lab working with his graduate class at Stanford University. This was recalled by alumnus Tristan Harris in the following.

The reason I care about this problem so much is I studied at a lab called the Persuasive Technology Lab at Stanford that taught students how to recognise exactly these techniques. There's conferences and workshops that teach people all these covert ways of getting peoples' attention and orchestrating peoples' lives. And it's because most people don't know that that exists that this conversation is so important. [29]

After the talk, B.J. Fogg protested to Harris that the Persuasive Technology Lab's work had been traduced, but shortly afterwards it changed its name to the Behaviour Design Lab with a mission to foster “good habits”. However, Harris went on, after being invited to be an executive in Google as the in-house “design ethicist”, a post from which he resigned in frustration, to form the non-profit Centre for Humane Technology (CHT). This was used to lobby other “apostates” like Kevin Systrom and Jack Krieger who founded Instagram and attended Fogg's class at Stanford which became notorious for training a generation of Google, Facebook, Instagram, Uber and Snapchat entrepreneurs to use psychological insights to influence users' practices. Among these, Instagram's founders Systrom and Krieger were known for promoting “vanity” among its users, a trait that attracted Mark Zuckerberg's Facebook to acquire their start-up for \$1 billion in 2012. Subsequently, Systrom and Krieger resigned from Facebook in face of Zuckerberg's hubris, paranoia and psychotic autocracy. Other CFT “apostates” included Evan Spiegel founder of Snap, Jack Dorsey of Twitter and Roger McNamee former Facebook investor and mentor

to Mark Zuckerberg. Nowadays Dorsey's disaffection is expressed in the fact that as chief executive, he only works for Twitter part-time, has failed to improve Twitter's toxic culture into a safer and kinder environment, prefers to devote time to also managing Square, his digital payments giant, and was in early 2020 being threatened by boardroom raider Paul Singer. The latter built up a \$1 billion stake in Twitter and proposed Dorsey's removal alongside Silicon Valley insiders, Baroness Lane-Fox of Soho (London) and four former Google executives. This was averted in early 2020 when Dorsey accepted three new board members and a return of \$2 billion to Twitter shareholders. It may be concluded that, recently, shares in leading "attention capitalist" companies are in perhaps terminal decline [30,31].

2.3. "Attention Capitalism" Model of Spatial Planning

Although, as we see in the next paragraph, Georg Franck's planning philosophy is very different from the "libertarianism" of the Silicon Valley "attention capitalists" it is nevertheless relevant to get some insight into the ethos and actual programme of urban planning proposed by a leading venture capital investor of Facebook and co-founder (with Elon Musk) of PayPal, Peter Thiel. In May 2018, the nonprofit Seasteading Institute that Thiel co-funded with Milton Friedman's grandson, Patri, embarked on a pilot project with the government of French Polynesia to become the world's first floating city (Venice is tethered to its lagoon floor). The group planned to build three hundred houses on an island, which was to be run under its own governance and use its own cryptocurrency called Varyon by 2022. Initially, the project's founders imagined the city as a libertarian utopia free of regulation and taxes. The team's vision later evolved into one that the city was to be a way to live with rising sea levels. Thiel was quoted in the plans as envisioning: "Between cyberspace and outer space lies the possibility of settling the oceans" living on fish. There were various proposed designs. One was to feature buildings in multiple clusters along with large solar panels and wind turbines. Another was to be in a horseshoe shape and would include ample green space. The project intended to grow much of its food through aquaculture, involving breeding plants and fish in the sea. The habitat was to be fuelled by solar power and desalinated water from the ocean. Thus "seasteading" became a symbol of the tech industry's joy at conjuring utopian, luxury, "celebritarian" visions for the future. After a pioneer seastead was towed ashore by the Thailand navy for infringing national sovereignty its owner Rüdiger Koch fled the country, while bitcoin millionaire homeowner Chad Elwartowski and partner fled possible arrest [32]. Meanwhile, after sponsoring Donald Trump's Presidential campaign, Peter Thiel decamped to New Zealand. It was then discovered he received in 2011 citizenship of New Zealand by nefarious and possibly fraudulent means, breaking normal rules of residency by reneging on a promise to promote technology entrepreneurs. After a fire damaged his four-bedroom, \$4.8 million home in Queenstown, New Zealand, Thiel used the opportunity to convert a walk-in closet into a panic room. The German-born investor is liberal in his property purchases, with homes in San Francisco, Maui, New York and Los Angeles, but New Zealand holds special significance as the location to which so many of Silicon Valley's extreme liberal elite plan to retreat in the event of an apocalyptic crisis [33]. This confirms the old proverb "that a town planner plans to move to the country (or in this case, the wilderness)".

In the final paragraph following this one on this "Attention Capitalism" framing we shall interrogate these various planning actions through the lens of "Dark and Light Triads" analysis to help our assessment of which "disruptive" planning model, if any, is superior from a democratic, inclusive and egalitarian perspective. Continuing the urban design theme, though, Franck [16] analysed the work of two architects and sometime city planners he admired, namely, Karl Friedrich Schinkel and Mies van der Rohe. However, his emphases are only subtly about how they drew attention to their designs in built form. First, Schinkel "solved" a problem that existed in classical architecture, which as in the Parthenon in Athens, was "what to do with the building's corners?" The psychological term

for the underlying issue is called “synaesthesia” which attributes more to perception than reason in explaining why some experiences are more arresting than others. Franck relates this feeling to harmony residing in what he calls the “intermodal resonance” or musical quality of an aesthetic experience. Thus, resonance phenomena typically appear at the edges of perception, in this case, the corners. Shortening the bays (distance between end columns) is superior to lengthening that distance, making the building more compact but “muscular” (as the Greeks did). Doing the opposite, Schinkel broke the classical rule with his design of the Neue Wache police station in Berlin, locating the capitals of the lengthened spaces between the end columns as ledges overlapping the pediment resting atop the corner columns, on which he could place “angels” that uplifted an unquestionably “militaristic” Prussian look meant to draw suitably enlightened observation. He shows that Mies van der Rohe did the same thing with his rigidly rectangular grid-shaped facade of the Seagram building in New York. This did not lend itself to narrowing or widening the corner grids which would violate his “less is more” dictum. So, after a dozen years of reflection Mies dispensed with the grid at the corners leaving them windowless for the whole height of the Seagram.

So where do our exemplars reside on the “dark” to “light” spectrum of personality traits, “likes” and ideologies in respect of “attention capitalism”? First, we describe the two “triads” in question, the “dark triad” before the less explored “light triad”. Psychologists concur that the profiles of dark personality traits are defined, first as Narcissism, second as Machiavellianism and third, as (Sub-clinical) Psychopathy (subclinical meaning not visible from a clinical test [34]). More recently, Paulhus [35,36] concluded that *callousness*, the trait of being insensitive to others, is the driver for and bridge among the Dark Triad overlapping the three key personality traits. To be more specific, parsed below from [8], Narcissism includes an inflated ego, control-freakery, exultation, vanity and “hubris,” being admired and acknowledged by others; Machiavellianism is characterized by cynical, paranoid, misanthropic and immoral beliefs, emotional detachment, insouciant and self-serving motives, strategic long-term planning, manipulation and exploitation; while Sub-clinical Psychopathy is denoted by “imperiousness” both towards other people and social regulatory mechanisms; impulsivity; ingratitude and a lack of guilt, mortification or remorse for harming others. We have noted that “attention capitalism” is closely associated with Narcissism, particularly “vanity” which the founders of Instagram, Systrom and Krieger, used and attracted others in the “class of 2007,” ([18], p. 114) notably the founder of Facebook, who acquired it. But not long after, Systrom and Krieger resigned due to Zuckerberg’s hubris, paranoia, imperiousness and autocratic vanity which cover all three dark traits of Narcissism, Machiavellianism and Psychopathy. So, they joined Tristan Harris who resigned after experiencing similar from Larry Page at Google [37]. Peter Thiel is clearly paranoid in his aspiration for “seasteading” and desire to protect his \$5 million sheep-station and himself from the apocalyptic herd in the wilds of New Zealand’s Fjordland National Park. According to Palma and Reed [32], Thiel fears an apocalypse in the northern hemisphere, and sees New Zealand as a place where he can flee from such a disaster. O’Connell reports that Thiel’s favourite books are *Lord of the Rings* and *The Sovereign Individual*, an anarcho-capitalist tract published in 1997 by William Rees-Mogg. Thus Thiel:

... ..is in one sense a caricature of outsized villainy But in another, deeper sense, he is pure symbol: less a person than a shell company for a diversified portfolio of anxieties about the future, a human emblem of the moral vortex at the centre of the market [New Zealand hedged] the eventuality of some kind of systemic collapse scenario—synthetic virus breakout, rampaging AI, resource war between nuclear-armed states, so forth—Thiel’s plan was to get on a private jet and fly to his property in New Zealand. (The plan from this point, you’d have to assume, was to sit out the collapse of civilisation before re-emerging to provide seed-funding for, say, the). [32]

The second of Thiel’s favourite books was by *The Times* editor, father of the Old Etonian M.P. Jacob Rees-Mogg, and as Palma and Reed [32] finds it, “ impossible to over-

state the darkness and extremity of the book's predictions of capitalism's future; to read it is to be continually reminded that the dystopia of your darkest insomniac imaginings is almost always someone else's dream of a new utopian dawn". Thiel's obsession with Tolkien: "... was also inseparable from a particular strand of apocalyptic techno-capitalism" This "dark" strand was captured in the art of artist Simon Denny who had become fascinated with the utopian vision of the techno-libertarians of Silicon Valley and the role played by New Zealand in it. First, as Rees-Mogg had advocated, and Thiel acted upon, was to buy land in the country. Second, the fugitive moved to "seasteading" in which Thiel had once invested but for whom interest had subsequently waned. Third, act "Mined the Moon" for its ores and other resources, before colonising Mars, a dream shared by Thiel's former PayPal partner Elon Musk. At this point, our narrative stops because Musk still shares visions of space flight, Moon-Mining and colonisation of Mars, but he acts on many elements of his visionary landscape, animated by concerns about the sustainability of the planet that the techno-libertarians dreamed of escaping. Thus, he broke with those like Thiel whose causes as a Silicon Valley lobbying group called FWD.us promoted a conservative agenda that was anti-Obamacare, anti-unskilled immigration, pro-Arctic oil-drilling in a generally conservative and anti-environmental stance. In that respect, Musk had turned away from the dark triad, some of whose traits he nevertheless continues to display, and embraced more of the "light triad" elements. These involve Kindliness, Humanism and Kantianism which are equivalents to Kindliness being the belief that, generally speaking, humans are good; Humanism is the belief that humans across all personalities deserve respect; while Kantianism holds that humans across all personalities deserve not be treated as a means to an end. In Kauffman's book [38], psychological testing of 1500 research respondents showed "Light Triad" personalities scoring high on "light" traits tending to be older, female and have experienced less unpredictability in their childhoods. They also tended to report higher levels of religiosity, spirituality, life satisfaction, acceptance of others, belief that they and others were good, compassion, empathy, openness to experience and conscientiousness. Respondents who scored higher on dark triad traits were more likely to be younger, male and more motivated by power, achievement, and superficial relationships. They also tended to be less compassionate, agreeable, empathetic, satisfied with their lives and less likely to believe they and others were good. Not surprisingly, these contrasts place "attention capitalism" squarely in the Dark Triad of psychological characteristics with pronounced traits displaying Narcissism, Machiavellianism and Psychotic behaviour, as defined. This is not a good look for democratic spatial planning.

3. Surveillance Capitalism: Attention's "Original Sin"

In Zuboff's [39] impressive, critical interrogation of the practices of Silicon Valley social media corporate behemoths there is a relatively brief but expressive discussion and investigation of the aspirations of Sidewalk Labs (a subsidiary of Alphabet, the parent company of Google) for its plan for the harbourside, brownfield site of Quayside in the former docks area of Toronto, Canada. The spokesman for the plan is Sidewalk CEO Dan Doctoroff, former private equity financier, CEO of Bloomberg, the privately held financial, software, data, media firm, and deputy mayor of New York in the Bloomberg administration. Doctoroff is a colleague of Hal Varian, Google's Chief Economist who crafted the targeted advertising model that became the source of Google's billions. Varian's insight was that his employers had discovered they had fortuitously fallen upon the resource of essentially free and ubiquitous data. But the complimentary scarce factor would be the ability to understand that data and commoditise it in the form of advertising. In Zuboff's "The Age of Surveillance Capitalism" [39], Varian is parsed as outlining four forms of monetisation. First, data extraction and analysis: this realises "big data" as the raw material necessary for surveillance capitalism to exploit at scale (which Zuboff calls surveillance capitalism's "original sin"); second, new contractual forms for enhanced contract monitoring, which meant new ways of enforcing control by automatic digital monitoring of customer behaviour, like car insurance firms monitoring driver behaviour and adjusting

their premiums in real time; third, “personalisation” and customisation as represented in the “personal digital assistant” (e.g., Amazon’s Alexa) that extracts the “dark data” of personal identity and brings it into the light for the profit of others. As Varian mused half-a-decade ago:

These digital assistants will be so useful that everyone will want one and the scare stories you read today about privacy concerns will just seem quaint and old-fashioned. Google’s can monitor your emails, searches and locations and constantly remind you about forthcoming meetings or trips, all while patiently checking real-time weather and traffic. [40]

Finally, Varian also envisioned the quest for variety through permanent innovation as crucial to future profitability by “continuous experiments” such as predictive analytics, machine learning, automated mobility, Google glass, some “failing fast . . . or slow” but others succeeding better.

3.1. From “Surveillance Capitalist” to “Smart Neighbourhood” Test-Bed

So, the task of translating this ethos into an urban planning “continuous experiment” fell to Sidewalk Labs’ proposed development at Quayside, Toronto, though the term “surveillance capitalism” had yet to be invented but it is implicit in Doctoroff’s presentation of Quayside street furniture masquerading as targeted advertising:

. . . ubiquitous connectivity; incredible computing power including artificial intelligence and machine learning; the ability to display data; sensing, including cameras and location data ads to people in proximity, and then obviously over time track them through things like beacons and location services as well as their browsing activity . . . [41]

While Quayside and Sidewalk Labs can be clearly seen to be driven directly by the overwhelming ambition of Alphabet/Google to make money out of the beacons, location services and people-tracking, more normal public governance, albeit possibly charged with making discretionary rather than democratic decisions about the substance of public design, is less overtly mercenary and hopefully less addicted to “surveillance capitalism”. Nevertheless, beneath the smart-tech veneer, Quayside remains inescapably a property-driven machine for profit-making for itself and its clients through predictive advertising exploiting surplus “data exhaust”. As Morozov [40], comparing the real personal assistants of the rich with the then envisaged digital alternative for the normal saw it:

But something doesn’t add up here: few of us expect our personal assistants to walk away with a copy of all our letters and files in order to make a profit off them. For our virtual assistants, on the other hand, this is the only reason they exist. In fact, we are getting shortchanged twice: first, when we surrender our data—eventually, it ends up on Google’s balance sheet—in exchange for relatively trivial services, and, second, when that data is then later used to customise and structure our world in a way that is neither transparent nor desirable. [40]

Thus, although once Google was an unprofitable search company, it is not anymore. Rather they are what Weinberg [42] refers to as a “tracking” company. All [41] data points allow Google to build a robust profile of a consumer’s personalised identity. He continues that by keeping such a close guard on everything thus personalised, Google may know the person better than she knows herself! The result of all that tracking is that Google uses your personal profile to sell targeted advertisements, not only on their search engine, but also on over three million other websites and apps. Every time a person visits one of these sites or apps, Google is stalking her with hyper-targeted ads, trying to influence her behaviour and exploit it. By allowing Google to collect such information, users are allowing hundreds of thousands of advertisers to bid on serving the user advertisements based on sensitive personal data. Everyone involved is profiting from user information, except the user. This is indicated in Yun and Lee’s research [12] who indicate the pitfalls of AI as deployed in “surveillance” planning. Echoing Marshall McLuhan’s “The medium is the message,” for the contemporary era: “The user is the product”.

Surveillance capitalism's first foray into localised urban planning began next to Google headquarters in Mountain View, in the heart of Silicon Valley, from 2017. It was designed jointly by "starchitects" Heatherwick Studio and Bjarke Ingels Group (BIG) designers of New York City's World Trade Centre, "Courtscraper" and "Spiral" towers. Having cut its teeth on the "smart annexe" to Googleplex, the company's design affiliate under the Alphabet parent firm, Sidewalk Labs, announced an ambitious "smart neighbourhood," known as Quayside, in Toronto. The scheme had faced widespread critique since late 2017, when Sidewalk Labs' plan to fashion a neighbourhood "from the internet up" was first revealed. For example, the following summarises the concerns of informed digital business journalist and founder of BlackBerry, Jim Balsillie:

'Smart cities' rely on IP and data to make their vast array of city sensors more functionally valuable, and when under the control of private interests, an enormous new profit pool. As Sidewalk Labs' chief executive Dan Doctoroff said: "We're in this business to make money." Sidewalk also wants full autonomy from city regulations so it can build without constraint. [43]

Other criticisms revealed suspicions about turning part of Toronto into a corporate test bed. These were alerted, at first, by the company's history of unethical corporate activities like censoring Google's messaging in China by feeding location, mobility and other positioning data to the Chinese government and illegally tracking movements of Android and iPhone users even when they implement privacy settings to prevent such data harvesting [44,45].

Nevertheless, Quayside is the joint effort by the Canadian government agency Waterfront Toronto and Sidewalk Labs to develop 12 acres of valuable waterfront in the near southeast of downtown Toronto. In April 2019, the appointed (i.e., unelected) managing board of Waterfront Toronto made interim recommendations which led Sidewalk Labs boss Dan Doctoroff to welcome the determination: "We want to be a partner with Waterfront Toronto and governments to build an innovative and inclusive neighbourhood".

It meant Sidewalk Labs would continue to develop its proposal, along with Waterfront Toronto's evaluation of the project after inviting further input from the public. Waterfront Toronto's board would then make a final decision on 31 March 2020. Among new stipulations were restrictions on Sidewalk Labs' ability to collect data in Quayside. "After two years in Toronto and engaging and planning with over 21,000 Toronto residents, we are looking forward to the next round of public consultations, entering the evaluation process, and continuing to develop a plan to build the most innovative neighbourhood in the world," Doctoroff added. Sidewalk's preference was to establish with the agreement of the partners an Urban Data Trust. The agency disallowed such unelected data-collection to inform neighbourhood design and resident activities. Even Sidewalk's promise to anonymise and bar the use of data for advertising or to be used by other Alphabet companies cut no ice with Waterfront Toronto. Their determination was for the team to follow existing and future privacy legislation, regulations and policy frameworks of the Canadian government. Thus, Waterfront Toronto will manage the data collection and be responsible for proposing any amendments to the City of Toronto. In a major climb-down accepting this:

Sidewalk Labs agrees to work with Waterfront Toronto and governments to ensure proposed solutions do not impede accessibility, freedom of association, freedom of expression, equitable treatment of marginalised groups, and public engagement. [27]

The specific condition that had so exercised the agency into curtailing Sidewalk Labs' and CEO Dan Doctoroff's ambitions was as follows: Sidewalk Labs had proposed the up-front creation of an IDEA (Innovative Design and Economic Acceleration) district covering a much greater area (190 acres) than Quayside's trifling 12 acres. Sidewalk Labs was told this was "premature" and the agency needed to see goals achieved for Quayside before collaborating on other schemes: government "performance payments" to Sidewalk Labs depend on this. Even then, the City of Toronto would need to be supportive especially as it owned the development land in question. Toronto's freezing winters had been

dubbed “colder than Mars” [44]; but Sidewalk Labs designer Rohit Aggarwala, articulating Google’s mantra of “continuous experiments” referred to installing “building raincoats” to protect Quayside’s timber architecture, also designed by Thomas Heatherwick, from harsh winter weather. Further, folding door “fanshells” that, contrastingly, open up the building frontages, curbless street design, wider sidewalks, wayfinding beacons and heated pavements were other novelties. Questions of sustainability and practicality were issues of controversy for the “Block Sidewalk” protest movement that sought to stop the proposal to use a “tech company” to develop a neighbourhood [46]. This led to the prospectus adjustment promising to use a central square flexibly to house occasional public installation art with a side-square “sculpture garden” [47]. But as shown, some Google “innovations” have the propensity of “fast failure” not anticipated by Heatherwick Studio’s computer graphics. By May 2020, Quayside had been shelved indefinitely. Urban protest at the Doctoroff vision of building a city “from the Internet up” combined with the property slump occasioned by the Coronavirus pandemic led Sidewalk Labs to abandon the ambitious but flawed design for its first “smart neighbourhood”. It thus joined the other libertarian vision of seasteading on the shelf marked broken dreams.

3.2. From Ubiquitous Computing to the Disappearing Internet

Ubiquitous computing is both the mantra and the intention of surveillance capitalism after Zuboff [39] but as we have seen the overwhelming ambition of Alphabet to make money out of the beacons, location services and people-tracking has for the moment been somewhat thwarted. City and agency stipulations against articulating techno-terms like “Urban Data” to mystify neighbourhood users and anticipating infringements of Canadian data privacy laws have “curbed” Sidewalk’s ambitions. Eric Schmidt, Google’s CEO has implied that they have “nothing to hide,” so they are not concerned with the amount of information Google has collected and stored on them, but that argument is fundamentally flawed. Everyone has information they want to keep private: keeping curtains drawn in the dark; covering up in the bathroom, are not perverted actions. Normal personalities express a desire for protection from the hands and eyes of everyone, and absolutely reject people profiting from their identities without their consent or participation. Privacy [48,49] is essential to democratic institutions like voting and everyday situations such as getting medical care and performing financial transactions. But Google CEO Schmidt at the 2015 Davos World Economic Forum showed his abnormal personality with the following remarks in answer to the future of the Internet:

I will answer very simply that the Internet will disappear. There will be so many IP addresses ... so many devices, sensors, things that you are wearing, things that you are interacting with that you won't even sense it,” he explained. “It will be part of your presence all the time. Imagine you walk into a room, and the room is dynamic. And with your permission and all of that, you are interacting with the things going on in the room. [50]

His quote was indebted and ingratiated to both Hal Varian and even earlier to [51] and indirectly Mark Zuckerberg. Weiser famously wrote an influential article that many data farmers treated as their secret manifesto:

The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it ... (and) ... that allows the computers themselves to vanish into the background ... (to) ... fit the human environment instead of forcing humans to enter theirs ... [51,52]

So, Schmidt had Weiser’s insight at the forefront of his mind while publicly expressing the following responses to questions about Google’s trustworthiness regarding “privacy”:

... should users be sharing information with Google as if it were a “trusted friend?” Schmidt responded, “If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place.” [53]

Inspired by an earlier data farmer, Scott McNealey, founder of Sun Microsystems a workstation manufacturer, of which Eric Schmidt was previously CEO, had opined:

"You have zero privacy anyway." Sun Microsystems chief executive McNealey famously said in 1999. "Get over it." [54]

In the surveillance capitalism echo-chamber, Facebook's Mark Zuckerberg concurred with two public quotes to the effect that:

... . . . none of the cool kids care about privacy. Neither should you. [54]

and

People have really gotten comfortable not only sharing more information and different kinds, but more openly and with more people. That social norm is just something that's evolved over time. [17]

At the individual identity or personality level, lack of privacy leads to placing people into a filter bubble, becoming manipulated (Machiavellian not Kantian) by advertisements, experiencing discrimination, fraud, and identity theft by "dark triad" denizens. On a societal level, it can lead to deepened polarization and societal manipulation (Psychotic) of the kind that "surveillance capitalism" critics have seen multiplying in recent years. These are shadowy visions of classic "dark entrepreneurship"

By late February 2020, Waterfront Toronto in their technical evaluation of Sidewalk Labs' master plan gave contingent approval to ninety-two "solutions" that Waterfront Toronto said it would support provided all funding and delivery was handled by the private sector. However, it rejected outright sixteen of its proposals such as undersized flats and a shrunken yet fluid use-classes building code. The building "raincoat", "fanshell" and "lantern forest" wind protector innovations were shot down, "exciting Sidewalk Labs to keep looking for solutions for outdoor comfort in our building designs at Quayside" as a spokesperson responded to these disappointments. Sidewalk's most complex proposal was for an advanced power grid, thermal grid, waste management system and stormwater management system, but it too was rejected on feasibility grounds, except for the thermal grid. A further twenty-four elements were halted subject to future funding by the Canadian government, while seventeen were dependent on future policy and regulatory changes by government. The approved measures include mass timber buildings, solar-panel and/or vegetation-covered rooftops, electric vehicle (EV) ownership incentives and charging infrastructure, smart waste chutes and the thermal grid [55]. Without the profits from any as-yet-to-be-invented new business model it is hard to see a glowing beacon for Quayside's "smart neighbourhood". A \$13 billion splurge announced in 2019 on property development in low-cost locations suitable for building huge data centres to support cloud computing requirements may be a signpost of the company's next step as it seeks to keep up with Amazon's supremacy in that market [22]. Accordingly, with a few elements that may in the long-term future make Californian-style living more suitable to "Life on Mars", the conclusion after the "progress" thus far of Sidewalk Labs "surveillance capitalism's solutions" to super-smart, semi-green urban planning mean the adjudicating jury must probably remain out while improved evidence for "outdoor comfort" and a new business model are subjected to "continuous experiment".

4. Sustainability Capitalism and the Practical Engineering of Productive Plans

Although it was noted earlier that Peter Thiel and Elon Musk were co-founders of PayPal, Musk broke with them because he was unhappy with the business journalism nickname, the "PayPal Mafia". These included Thiel (co-founder of PayPal and Palantir), Max Levchin (co-founder at PayPal), Steve Chen, Jawed Karim and Chad Hurley (co-founders of YouTube), Reid Hoffman, (founder of LinkedIn), David Sacks (founder of Yammer) and Jeremy Stoppelman (founder of Yelp). The PayPal Mafia is occasionally credited with inspiring the re-emergence of consumer-focused Internet companies after the dot-com bust of 2000 as discussed in Matyszczyk's paper [56]. According to Lacy, the selection process and technical learning at PayPal played a role, but the main factor behind their

future success was the confidence they gained from the physical, cultural, and economic infrastructure of Silicon Valley and their diverse networking skillsets. PayPal's founders encouraged tight networking among its employees, and many of them continued to rely on and trust their networks after leaving PayPal. Many of them went on to found technology firms such as LinkedIn, Palantir, YouTube, Yelp, and Yammer, as well as Musk's firms at the time—Tesla Motors and SpaceX. By now Musk's roll call of firms also includes his early founding of X.com which acquired the company Confinity. This became PayPal which was eventually acquired by eBay. Musk later re-acquired X.com in 2017. He also founded or co-founded Tesla Motors, SpaceX, Neuralink (healthcare), OpenAI (artificial intelligence), The Boring Company (tunnelling), and he is also the Chairman of SolarCity (solar energy and battery storage). Most of the members attended Stanford University or the University of Illinois Urbana-Champaign.

4.1. Musk Breaks Free from Extreme Libertarianism

Musk's separation from the extreme libertarianism of many of these "attention capitalists" is grounded. According to Harris [19] a former Facebook engineer: "The best minds of our generation are thinking about how to make people click ads" a sentiment with which he reports Musk agrees with him, saying, "I think there are probably too many smart people pursuing internet stuff, finance and law. That is part of the reason we haven't seen that much innovation." The deeper point here, the correspondent infers, is that Musk is not seeking small incremental or adaptive innovations but is always in pursuit of his larger purpose. So, what is Musk's guiding ethos and larger purpose of which he is in pursuit?

Even as he learned computing as a child, the aim of the Blaster computer game he created and sold was crafted to save the world from an alien space freighter. In university, he wrote papers detailing his plans for sustainable energy to try to ensure that civilization could continue to progress. As a successful entrepreneur he was working to create a system of interconnected companies to help "our species in the short term as well as in the long term". (Musk quoted in [19]). He also discussed at length Tesla, its platform interests and the need for our species to wean itself off fossil fuels. He further criticised the mass displacement of carbon from the ground to the atmosphere, and ultimately into the oceans, as an incredibly dangerous experiment whose ultimate outcome is unknown. In an interview, he said: "We should not do this. We know that sustainable energy is the end point. So why are we doing this experiment? It's an insane experiment. It's the dumbest experiment in human history". Thus in a few words Musk's strong sustainability ethos is clear as a moment's perusal reveals of his business platform of solar panels, lithium batteries, solar roof tiles and storage systems (Megapacks), electric vehicles, artificial intelligence and healthcare (Neuralink) bionics and robotics, and SpaceX which profits from government and corporate satellite positioning rocketry and payloads.

Our interest is in what the "orchestrator" of these enterprises, presenting a clean technology platform aimed at saving the "species" through sustainable spatial development has realised in terms of potentially influential urban and regional planning accomplishments. Is it superior to the "smart surveillance" model expressed in Sidewalk Labs' Quayside in Toronto, Canada, or as prescient as Peter Thiel's otherwise extreme libertarian "seasteading" or "sheep station" retreat from a viral pandemic while awaiting discovery of an exact antiviral vaccine? Importantly, Musk's thoroughgoing aspiration to implement sustainable development—which frequently disappoints in practice—has been shown to work repeatedly, on an inter-regional scale and encompassing inter-continental, global network relations that energise the results. Threats to the species (i.e., human and natural life) animate at each level of his "sustainable capitalist" model. We can start the narrative at the individual patient or experimental subject level by illuminating the work of Neuralink, a medical research firm based in San Francisco's Mission District in the historic Pioneer Building shared with OpenAI, a complementary Musk enterprise. Like other of his interests, it was stimulated by a science fiction concept, namely, "neural lace" from *The Culture*, a series of novels by Iain M. Banks. The Matrix-style "neural lace" is defined

as a digital layer above the cortex that would connect through an implant via a vein or artery in a “symbiote”. The long-term goal of this procedure is to achieve human symbiosis with artificial intelligence, which Musk sees as an existential threat to humanity if it goes unchecked. Currently such neurobionics can enable disabled people to activate their limbs. Musk’s intention is that customised software implants would interface with brain signals at fast broadband speed. The company received \$65 million DARPA research grant and sponsors animal testing research in collaboration with scientists at the University of California, Davis, National Primate Research Centre. Animal testing for products is banned only for cosmetic products in California since 1 January 2020. Musk justified this arguing the best outcome of the human–AI relationship would be where “we are the AI” rather than an “evil dictator AI” being in charge [57].

4.2. *Effective Altruism Faces Messy Reality*

Messy reality characterises the reputation of OpenAI, which became one of the leading AI research labs alongside the likes of Google’s DeepMind for prominent research advances. Its mission is to be the first to create artificial general intelligence (AGI)—an algorithm with the deep learning and reasoning powers of a human mind. The dangers of the “evil dictator” trauma mean AGI could be catastrophic without the benevolent guidance that Musk believes to be vital. OpenAI’s prospectus emphasises it will “build value for everyone rather than shareholders”, vowing its “primary fiduciary duty is to humanity” and if lagging a competitor, it “would stop competing with it and collaborate instead” leading in 2019 to Microsoft injecting OpenAI with a new research investment of \$1 billion [58]. Not surprisingly, OpenAI’s image and reality have become misaligned as it has evolved a culture of fierce competitiveness and mounting pressure for ever more funding to erode its founding ideals of transparency, openness, and collaboration. Rather, it became obsessed with maintaining secrecy, protecting its image and retaining the loyalty of its employees.

Efforts to correct the over-commercial ethos misalignment came too late for Musk who played a large part in building OpenAI’s collective mythology, when he announced he was in 2019 departing the company over disagreements about its direction, though tellingly co-founder Peter Thiel did not. Nevertheless, OpenAI recognised its competitors now out-ranked them prodigiously, and they had to cease being a non-profit business and re-charter as a “capped profit” public entity. Thereafter, the investment was made, actually in the form of cash and credits split between Microsoft and its cloud computing platform Azure.

The company rejects claims from critics that this deal is an unholy compromise expressed in their vacillation between naiveté and hypocrisy. This paradox led to accusations of wanting and eating the cake, of wanting a flattened organisational hierarchy not to unduly concentrate power. But what of “the competition”, notably Google, that was strengthening its corporate structure by internalising DeepMind and relocating it from London to Boston? How would these incompatibles work? What exactly is power, if not the concentration of resources? Re-thinking the company ethos as a form of “effective altruism” met eventual agreement among OpenAI’s staff. Simultaneously, OpenAI developed a new algorithm that received global publicity. It could extrude fake news at the press of a button, which in the wrong hands could be weaponised. There are two AGI models: one is what can be called a “portfolio” effect where sufficient techniques already exist, and they mainly need assembling and scaling; the other can be called the “proximity” effect, needing a new paradigm somewhere beyond deep learning. OpenAI’s success has come from throwing big data analytics at the technical portfolio developed at other research labs. This strategy was secretive because while OpenAI needed “attention” for reputation, it has also to be modestly careful and secretive regarding its “competitive advantage” which is also its reputation for competence and security. OpenAI’s priority task, present mission and primary aim is to collapse the portfolio and proximity models into one super-synthesis. A currently secondary project that will eventually rise to prominence is on how to make such advancing AGI systems safe for human utilisation. Thus the “dark triad” elements of Narcissism and a little Machiavellianism are countered in corporate strategy debates by

attempts at, if not “saintliness,” then at least “light triad” ethical and moral sensibility to the contradictions of humanism in a callous world.

4.3. The Logistically Efficient Underlying Model of Sustainable Capitalism

We move on next to three more concrete paradoxes of saintliness in a narcissistic world by reference to two manifestations of Musk/Tesla’s “sustainable capitalism” investments in renewable energy buildings, infrastructure, and mobility. Accounts of Tesla’s design and construction of its lithium-ion battery production system reveals in its “pattern recognition” of spatial deep structures can be revealed more simply than some of Musk’s science fiction inspirational learning. Some of the dilemmas in these processes are revealed in his address to Tesla workers about to be made temporarily redundant owing to the hesitant early performance of manufacturing the popular Tesla model 3 at the Fremont assembly plant:

There are many companies that can offer a better work-life balance, because they are larger and more mature or in industries that are not so voraciously competitive. Attempting to build affordable clean energy products at scale necessarily requires extreme effort and relentless creativity, but succeeding in our mission is essential to ensure that the future is good, so we must do everything we can to advance the cause. [59]

Some critics see Machiavellian intent in this injunction to an arguably exhausted workforce to think of the higher purpose those to be made redundant were leaving behind, though they would be re-hired when Tesla’s manufacturing problems died down. One even deemed his address as displaying what Musk implied with these words is an example of what is known as the “dark side” of emotional intelligence.

We can see the concrete evidence of the contribution of the Tesla subsidiary Solar City that manufactures lithium-ion batteries (LIB) for solar roof tiles and utilises Powerpack solar storage megapacks both for individual renewable energy customers and at community scale by reference to the achievements and design arrangements of these facilities. First, Solar City was built on brownfield urban land at the former Republic Steel plant at Buffalo, New York State. Located at RiverBend, vacated in 1982 following the firm’s acquisition and transfer to Monterrey, Mexico, the site was transformed with New York State’s “Buffalo Billion.” This was “rustbelt reconversion” aid earmarked for development of a clean energy business incubation centre and funded with \$225 million of the “Buffalo Billion” in 2013–4. New York State bought the plot, which was ultimately leased to Tesla, in partnership with Panasonic, for its SolarCity Gigafactory (2) which opened in 2017. Tesla’s new plans meant abandoning the clean energy business incubation centre design in favour of the construction of a 1.2 million sq. ft. factory. With a promise of 3000 jobs and 5000 state-wide, the administration increased aids to \$750 million. Later, at the end of 2019, state officials further wrote down more than \$800 million in economic development aids made to Tesla. The plant was earmarked to produce Tesla solar roof tiles rather than car batteries but at relatively low volumes. These were planned to increase substantially to 1000 roof systems per week by the end of 2019. Despite good rail and road logistics, distribution to the housing market has been hampered by attention having been diverted towards the Tesla 3 model’s manufacturing problems, now seemingly resolved. Tesla roof tiles are made of textured glass with solar cells hidden inside. Production with joint venture partner Panasonic has been slow. A key problem for Tesla’s production process was researching the “solar-sandwich” process. Accordingly, Tesla struggled with low yield rates, meaning at times scrapping 70 percent of production. Investors, customers and the community’s expectations of a reasonable return on the state’s investment in terms of jobs, returns from tax outlays, green energy factory footprint and local multiplier effects were all more or less subject to degrees of disappointment.

Moving to the energy storage business, Tesla’s first solar and wind energy farm was only achieved in 2020. The cylindrical Powerpack battery packs are assembled again jointly with Panasonic at Tesla’s Gigafactory (1) in Reno, Nevada. Permission has already been granted for construction of 1 GWh of Megapacks to create a massive energy storage system at Monterey, California for energy utility Pacific Gas & Electricity as a further indicator of

established intent to store wind and solar power sustainably (Figure 1). Another Megapack is the 129 megawatt-hour (MWh) Hornsdale Power Reserve battery in South Australia, which was installed in 2018. It saved \$5.7 million in its second quarter of operation based on only the 30 megawatts (MW) of capacity it is trading, delivering a gross margin of \$8.9 million. We can conduct pattern recognition of Tesla's deeper structures in the following: brownfield or desert Gigafactory locations, substantial economic development aids, direct highway and rail links, significant business partnerships, experimentation and innovation, substantial job creation, urban labour access, sustainable economic development delivery.



Figure 1. Tesla and Pacific Gas & Electricity Solar & Wind Energy Storage Megapacks at Monterey, California.

Such pattern recognition features are underlined further in regard to the locational analysis for Gigafactories (1, 3 and 4) at Reno, Shanghai and Berlin, respectively. These follow sustainable manufacturing design first implemented at Tesla's first, smaller "megafactory" at Tilburg, the Netherlands. Built in 2013, it is intentionally located next to advantageous infrastructure. This includes alignment with the Wilhelmina canal linking intermodal container barges with the Port of Rotterdam and the high quality and availability of transportation infrastructure. An excellent rail and motorway network connects Tilburg to all major electrical vehicle (EV) markets meaning parts can be distributed to anywhere across the continent within 12 h. If we move to Gigafactory (1) at Reno, the Union Pacific Railroad (UPR) transcontinental railway runs through the Tesla axis of production and assembly which includes suppliers in Michigan and Ontario, the Nevada LIB plant and a variety of Tesla EV manufacturing clusters along the UPR at brownfield assembly and supplier facilities and distribution centres at Livermore, Lathrop and Fremont in California. Fremont is the main assembly location. Here Tesla influence is shown in its main site, which is a recycled automotive assembly factory, site of the former GM-Toyota joint venture intended to enhance American automotive assembly by learning Japanese production techniques while techniques while also assisting the transfer of small car design competence. The New United Motor Manufacturing Inc. (NUMMI) plant opened on an old 370-acre GM site in 1984, some twenty-two years after GM built it. In 2010 Tesla took possession of the site that GM had auctioned to Toyota on dissolution of the NUMMI partnership in 2010. The urban planning implementation followed production as elsewhere.

Thus, in Warm Springs, a suburb of Fremont, on old UPR railyards a new "innovation district" featuring a "Tesla campus" with an advanced manufacturing plant, an "innovation cultivator" for technology start-ups in cleantech, life sciences and advanced manufacturing, on 850 acres of former railyards at Warm Springs, Fremont, centrepiece of a new Bay Area Rapid Transit (BART) interchange. Surrounding these are three thousand new dwellings, offices, a variety of related plants and retail outlets with a target of 40,000 employees. The key planning facilitator for this scheme is the Fremont Economic Development Agency

with urban developer Lennar, which stresses a Smart-Sustainable combination but without the Sidewalk Labs digital hype. Rather, public transport access for workers and freight is pronounced. Its developer's guide demands at least one publicly accessible urban plaza per planned housing scheme; such plazas to be linked by streets or pathways that include dedicated bike lanes; areas near rapid transit to be built to a density of 50 housing units per acre, allowing higher density according to demand; and limited high-rise buildings. The Shanghai and Berlin Gigafactories (3 and 4) emulate the goods and employee infrastructural, brownfield, urban labour density, economic development assistance and loan facilities with heavy AI robotics investment and what some critics see as an overworked labour force that has been incrementally responded to by industrial injuries medical services and hospitalisation. Despite the website graphics, showing uniform rooftop solar panelling at some Gigafactories to be "greenwash" rather than installed, Musk's speedy achievement of spatially sensitive and sustainable development is aeons more enlightened than the extreme libertarianism of his erstwhile free marketeer models of comfortable urban living for the many, not the few.

5. Discussion and Conclusions

Three key points underlie the discussion and conclusions arising from this research and concepts paper. The first is that practice defeats mere "opinion". Thus, our first two variants of libertarian ideology, which have hardly even proved feasible to their natural policy audience, have both failed the acid test of being provably built beyond the architectural sphere of online graphic imagery. The third variant, arising from not dissimilar contrarian roots is shown to have integrated a core set of human-centred, planetary concerns with practical design and massive investment, one consequence of which means its eco-engineer had, by 2021, amassed the greatest entrepreneurial fortune in history. The second discussion point and conclusion is that an enormous boost has been given to public confidence in the socio-spatial design and implementation process. In addition, it has shown sustainable development can be designed at a prodigious scale while mitigating climate change with multifold yet complementary core elements. Third, the success of the sustainable capitalism model gives further confidence to society by demonstrating that policy can be successfully led by theory. This is because the Tesla stable of innovations are consistent with core evolutionary economic geography for favouring "related variety" over industrial "specialisation" as a growth model with benign environmental effects. So, we can now summarise the three positions discussed, identifying the deeper "assumptive worlds" on which they are based (Figure 2).

Attention, Surveillance & Sustainable Capitalisms

ATTENTION	SURVEILLANCE	SUSTAINABLE
Psychological desire for attention	Privacy Pervasiveness	Affordability Recycling
Parallels: attention and money	Prediction Performativity	Integration Decarbonise
Aspiration to 'celebrity' & 'brand' ego	Purposelessness	'effective altruism'

Figure 2. The three featured models of contrarian spatial development planning.

Accordingly, while it is not too difficult to identify occupants of the "dark triad" of personality traits in all three of these accounts of disruptive models of socio-political,

economic and urban planning life. The question is to what extent can any of them approach the “light triad” more clearly than the rest? “Attention capitalism” as an extreme form of libertarian insouciance, solipsism, “celebrification” and indeed, imperiousness. It is unquestionably the most socially unattractive, exclusive and belittling in its Narcissistic complacency. Readers will recall this entails inflated ego, control-freakery, exultation, vanity and “hubris” towards personal luxury and wealth compared to more normal forms of everyday life. So much so that many of its vanity-driven early disciples have rejected it and critiqued the Persuasive Technology Lab that spawned it as a social media and cultural form more generally. Having dismissed this “attention”-led vision of the egotistic utopia for the elite as wholly impractical in legislative rule-governed and democratic settings, we turn briefly to discuss the disruptive vision of “Surveillance Capitalism” which is closely associated with Alphabet, the parent of Google and affiliate of both, in the shape of Sidewalk Labs, the in-house corporate urban planning business. As Sidewalk’s CEO Dan Doctoroff has stated, the firm is fundamentally in the business of seeking to “make money” over other possibly nobler aspirations such as mitigating uneven development, reducing social polarisation or self-regulating its appetite for identity-theft.

To clarify by summarising, Attention Capitalism plays on the psychology of human desire for attention. This is monetised through narcissistic display that earns commissions from firms benefiting from self-advertisement of branded products by “influencers” on social media, who may become or already exploit pre-existing “celebrity” [60]. Such celebrities include founders that make desirable such protections from “non-celebrities” of planning philosophies like “Seasteading”. Surveillance Capitalism involves taking the deep structures of “Big Data” firms such as Google or Facebook as “data miners” that ignore personal privacy, engaging in “identity theft” as a pervasive practice. Their proximate aim is profit, assisted by their ability to render Big Data into predictions, sold to advertisers while inducing “performativity” from social media users. Addiction to such norms renders many such users purposeless in the face of excessive consumerist performativity. Sustainability Capitalism has a moral core, namely, to lead affordable mitigation efforts in renewable energy and related application markets. It remains capitalist in being profit-oriented but is environmentally and socially less harmful than the status quo or the prospectuses of the other two models. Its decarbonising aim for the economy is supported by the re-purposing of redundant infrastructure and spatially planned integration of related business, including employee functions. It adopts “effective altruism” by the tactic of refusing to price-cut when faced with superior capitalistic product competition. However, to gain occasional advantage, its management is not averse to practising elements of “dark entrepreneurship”.

We showed that Quayside, Toronto is clearly a forerunner of a totalising formula for deeply embedding identity-theft and exploitation as ubiquitous and unavoidable advertising. We showed that targeted advertising is the distinctive form that “Surveillance Capitalism” takes under the guise of “friendly connectivity” (notably Facebook). It is callous, as “Dark Triad” psychology predicts and predominantly representative of the Machiavellian “dark entrepreneurial” trait in particular. Readers will recall that Machiavellianism is characterised by cynicism, paranoia, misanthropy, and immoral beliefs such as promoting social abuse of many kinds, polluting the airwaves and dissemination of “fake” information or lies; it displays emotional detachment; insouciant and self-serving motives; and strategic long-term planning through manipulation and exploitation. Sidewalk Labs scatters Google’s distorted business model of targeted enterprise under a motto (recently altered from “Don’t Be Evil” to the more neoliberal “Do The Right Thing”) to try to disguise its ludicrous imperiousness. While we have utilised a form of narrative interrogation termed “pattern recognition” of which the Dark Triad of corporate “personality traits” is pronounced in Google as the apotheosis of “Surveillance Capitalism,” its DNA as a “surveillance” parasite persists in its “continuous experiments”. Thus, where Tesla constructs EVs including Models X, Y, 3, Semi-truck (articulated), Truck and Roadster on the vehicle side and Powerwall/pack and Solar Roof on the energy side, Google’s contribution to EVs is surveillance lidar (light detecting and ranging) for Waymo, Google/Alphabet’s

autonomous taxi project, for seeing around blind spots and road signs at 500 metres based on a 3D GoogleMap. Its current main customer is Jaguar's I-Pace EV SUV of which 20,000 were bought by Waymo as potential taxis for suburban service in Phoenix, Arizona [10]. Not satisfied with mapping the planet, surveilling users' search habits and servicing billions of mobile telephones via Android, another "innovation" is emerging from Google's Department X "continuous experimentation" unit. The new "Tidal" project is to conduct surveillance of thousands of fish, observing individual fish habits and behaviour. It is initially aimed at aquaculture, but it requires little imagination to envisage Tidal tracking the large deep-sea shoals of interest, notably endangered marine life like whales and penguins but also approved species, for industrial fish-factories in remoter ocean areas [11,61].

So, now we come to the third disruptor, Elon Musk and his energetic pursuit of enhanced human "symbiotes" meaning the symbiosis of the human brain with artificial intelligence, which he sees as an existential threat to humanity and sustainable engineering and construction which, through battery-driven EVs and renewable energy storage batteries and solar roofs are aimed at fulfilling his long-time vision of helping save the species from global warming and climate change. While there are "dark entrepreneurial" traits in Musk and Tesla's practices, including "greenwashing" the roof imagery of his Gigafactory (1) in Nevada (and instead buying cheap nuclear power from the Nevada grid), making over-ambitious promises that could not always be fulfilled to investors, harrowing Japanese battery and EV joint venture partners Panasonic and Toyota to suffer or break alliances with them, and freezing out by acquiring Mercedes' single-source supplier of battery "separator" robotic technology (Tesla Grohmann Technology) causing the founder to resign and gaining "competitive advantage" over a rival, many "light entrepreneurs" might even consider making such "tough business decisions" normal practice. It is difficult not to conclude that, in general, the ethos of Tesla and Solar City and conceivably SpaceX are, on balance, "Sustainability" inspired. In brief, even SpaceX, which was inspired by Musk's early enthusiasm to live on Mars, has mutated into a highly profitable satellite shuttle for NASA and the vision of "Mining the Moon" and putting the world's polluting industry up there to clean Earth's atmosphere. Regarding the design process by which Musk's Gigafactories and related EV manufacturing logistics connections with subway, rail and highway haulage (eventually driven by semi-truck EVs) are an exemplary model of integrated working and living, ideally sheltered by sustainable solar roofs and solar-wind battery storage systems already being offered by battery-maker Duracell for individual not yet collective service, point to a benign disruption, totally unlike the contemporary depredations being inflicted by neoliberalism on a suffering planet.

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References

1. Cooke, P. Regional innovation systems, clean technology and Jacobian cluster platform policies. *Reg. Sci. Policy Pract.* **2008**, *1*, 23–45. [CrossRef]
2. Cooke, P. *Complex Adaptive Innovation Systems*; Routledge: London, UK, 2012.
3. Cooke, P. Gigafactory logistics in space and time: Tesla's fourth gigafactory and its rivals. *Sustainability* **2020**, *12*, 2044. [CrossRef]
4. Sadowski, J. Google wants to run cities without being elected. Don't let it. *The Guardian*, 24 October 2017; 9.
5. Anthopoulos, L. Smart utopia vs smart reality: Learning by experience from 10 smart city cases. *Cities* **2017**, *63*, 128–148. [CrossRef]
6. Cooke, P. Silicon Valley imperialists create new model villages as smart cities in their own image. *J. Open Innov. Technol. Mark. Complex.* **2020**, *6*, 24. [CrossRef]
7. Cugurullo, F. Exposing smart cities and eco-cities: Frankenstein urbanism and the sustainability challenges of the experimental city. *Environ. Plan. A* **2017**, *50*, 73–92. [CrossRef]
8. Rothman, J. How William Gibson Keeps His Science Fiction Real. *New Yorker*. 9 December 2019. Available online: <https://www.newyorker.com/magazine/2019/12/16/how-william-gibson-keeps-his-science-fiction-real> (accessed on 20 October 2020).

9. Yigitcanlar, T.; Kamruzzaman, M.; Foth, M.; Sabatini-Marques, J.; Costa, F.; Ioppolo, J. Can cities become smart without being sustainable? A systematic review of the literature. *Sustain. Cities Soc.* **2019**, *45*, 348–365.
10. Knowles, T. Google researchers put the focus on fish. *The Times*, 3 March 2020; 5.
11. Kosoff, M. Does Peter Thiel Know Something We Don't? *Vanity Fair*. 9 February 2018. Available online: <https://www.vanityfair.com/news/2018/02/peter-thiel-new-zealand-estate-panic-room> (accessed on 20 October 2019).
12. Yun, L.; Lee, M. Smart city 4.0 from the perspective of open innovation. *J. Open Innov. Technol. Mark. Complex.* **2019**, *5*, 92–100. [CrossRef]
13. Hall, P.; Soskice, D. *Varieties of Capitalism: The Institutional Foundations of Competitive Advantage*; Oxford University Press: Oxford, UK, 2001.
14. Kay, J.; King, M. *Radical Uncertainty, Decision Making for an Unknown Future*; Norton: New York, NY, USA, 2020.
15. Bishop, C. *Pattern Recognition and Machine Learning*; Springer: New York, NY, USA, 2016.
16. Gibson, E. Sidewalk Labs Advances Plans for Toronto Smart City Dezeen. 1 November 2019. Available online: <https://www.dezeen.com/2019/11/01/sidewalk-labs-waterfront-toronto-development/> (accessed on 20 November 2019).
17. Kaufman, S.; Yaden, D.; Hyde, E.; Tsukayama, E. The Light vs. Dark Triad of personality: Contrasting two very different profiles of human nature. *Front. Psychol.* **2019**, *10*, 467. Available online: <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.00467/full> (accessed on 20 October 2020). [CrossRef] [PubMed]
18. Foroohar, R. *Don't Be Evil: The Case Against Big Tech*; Allen Lane: London, UK, 2019.
19. Harris, T. How a Handful of Tech Companies Control Billions of Minds Every Day, TED Talk. 2017. Available online: https://www.ted.com/talks/tristan_harris_how_a_handful_of_tech_companies_control_billions_of_minds_every_day/reading-list?language=en (accessed on 20 October 2018).
20. Szalai, G. Google Chairman Eric Schmidt: 'The Internet Will Disappear'. 22 January 2015. Available online: <https://www.hollywoodreporter.com/news/google-chairman-eric-schmidt-internet-765989> (accessed on 20 October 2018).
21. Söderström, O.; Paasche, T.; Klauser, F. Smart cities as corporate storytelling. *City* **2014**, *18*, 307–320. [CrossRef]
22. Fazzini, K. Google will Spend \$13 Billion on U.S. Real Estate in 2019, Expanding into Nevada, Ohio, Texas and Nebraska. *CNBC*. 13 February 2019. Available online: <https://www.cnbc.com/2019/02/13/google-will-spend-13-billion-on-real-estate-moves-in-2019.html> (accessed on 20 October 2018).
23. Van Krieken, R. *Celebrity Society: The Struggle for Attention*; Routledge: London, UK, 2018.
24. Franck, G. Scientific communication—A vanity fair? *Science* **1999**, *286*, 53–55. [CrossRef]
25. Franck, G. Vanity fairs: Competition in the service of self-esteem. *Mind Matter* **2016**, *14*, 155–165.
26. Franck, G. Sensory intermodal resonance: Towards a neuroaesthetics of architecture. *J. Psychol. Psychiatry* **2018**, *2*. [CrossRef]
27. Waterfront Toronto. *Quayside Development Plan*; Waterfront Toronto: Toronto, ON, Canada, 2019.
28. Fogg, B. *Persuasive Technology: Using Computers to Change What We Think and Do*; Morgan Kaufmann: San Francisco, CA, USA, 2003.
29. Hollands, R. Will the real smart city please stand up? *City* **2008**, *12*, 303–325. [CrossRef]
30. Duke, S. Raider is doing Twitter a favour: Its part-time boss must be shown the door. *The Times*, 7 March 2020; 41.
31. O'Connell, M. Why Silicon Valley Billionaires are Prepping for the Apocalypse in New Zealand. *The Guardian*. 15 February 2018. Available online: <https://www.theguardian.com/news/2018/feb/15/why-silicon-valley-billionaires-are-prepping-for-the-apocalypse-in-new-zealand> (accessed on 20 October 2018).
32. Palma, S.; Reed, J. Crackdown Sinks Plans by 'Seasteaders' to Create Floating Nation. *Financial Times*. 28 May 2019. Available online: <https://www.ft.com/content/efc38392-7d3c-11e9-81d2-f785092ab560> (accessed on 20 October 2019).
33. Lacy, S. *Once You're Lucky, Twice You're Good*; Penguin: New York, NY, USA, 2008.
34. Paulhus, D. Toward a taxonomy of dark personality. *Curr. Dir. Psychol. Sci.* **2014**, *23*, 421–426. [CrossRef]
35. Paulhus, D.; Williams, K. The dark triad of personality: Narcissism, Machiavellianism, and psychopathy. *J. Res. Personal.* **2002**, *36*, 556–563. [CrossRef]
36. Popkin, H. Privacy is Dead on Facebook: Get Over it. *msnbc.com*. 13 January 2010. Available online: http://www.nbcnews.com/id/34825225/ns/technology_and_science-tech_and_gadgets/t/privacy-dead-facebook-get-over-it/ (accessed on 20 October 2018).
37. Thompson, N. Tristan Harris: Tech is 'Downgrading Humans.' It's Time to Fight Back. *WIRED*. 23 April 2019. Available online: <https://www.wired.com/story/tristan-harris-tech-is-downgrading-humans-time-to-fight-back/> (accessed on 20 October 2019).
38. Kauffman, S. *Reinventing the Sacred*; Basic Books: New York, NY, USA, 2008.
39. Zuboff, S. *The Age of Surveillance Capitalism*; Profile: London, UK, 2019.
40. Musk, E. Tesla Company Statement, Tesla. 18 January 2019. Available online: https://www.tesla.com/en_GB/blog/tesla-company-update?redirect=no (accessed on 20 October 2019).
41. Doctoroff, D. Google City: How the Tech Juggernaut is Reimagining Cities—Faster than you Realize. 2016. Available online: <https://www.bisnow.com/south-florida/news/technology/sidewalk-toronto-dan-doctoroff-82334> (accessed on 20 October 2018).
42. Weinberg, G. What does Google know about me? *Quora*, 5 March 2020.
43. Balsillie, J. Sidewalk Toronto Has Only One Beneficiary, and It is Not Toronto. *The Globe and Mail*. 5 October 2018. Available online: <https://www.theglobeandmail.com/opinion/article-sidewalk-toronto-is-not-a-smart-city/> (accessed on 20 October 2018).
44. Sauter, M. Google's Guinea-Pig City. *The Atlantic*. February 2018. Available online: <https://www.theatlantic.com/technology/archive/2018/02/googles-guinea-pig-city/552932/> (accessed on 20 October 2018).

45. Shapins, J.; Di Mascio, P. How the Urban Design for Quayside Evolved in Response to Public Protest. *Medium*. 24 July 2019. Available online: <https://medium.com/sidewalk-toronto/how-the-urban-design-for-quayside-evolved-in-response-to-public-feedback-b114d4bb0bad> (accessed on 20 October 2019).
46. Gibson, W. *Pattern Recognition*; Penguin: London, UK, 2003.
47. Simon, H. Designing Organizations for an Information-rich World. In *Computers, Communication, and the Public Interest*; Greenberger, M., Ed.; Johns Hopkins University Press: Baltimore, MD, USA, 1971; pp. 37–52.
48. Johnson, R. Privacy No Longer a Social Norm, Says Facebook Founder. *The Guardian*. 11 January 2010. Available online: <https://www.theguardian.com/technology/2010/jan/11/facebook-privacy> (accessed on 20 October 2018).
49. Morozov, E. Facebook Isn't a Charity. The Poor Will Pay by Surrendering Their Data. *The Guardian*. 26 April 2015. Available online: <https://www.theguardian.com/commentisfree/2015/apr/26/facebook-isnt-charity-poor-pay-by-surrendering-their-data> (accessed on 20 October 2018).
50. Tetlock, P.; Gardner, D. *Superforecasting: The Art and Science of Prediction*; Penguin: London, UK, 2016.
51. Wellman, S.; Kozai, T. Understanding the inflammatory tissue reaction to brain implants to improve neurochemical sensing performance. *ACS Chem. Neurosci.* **2017**, *8*, 2578–2582. [[CrossRef](#)] [[PubMed](#)]
52. Weiser, M. The computer of the 21st century, Scientific American Special Issue on Communications, Computers, and Networks. September 1991. Available online: <https://www.lri.fr/~jmb/Stanford/CS477/papers/Weiser-SciAm.pdf> (accessed on 20 October 2019).
53. McLuhan, M. *Understanding Media*; Mentor: New York, NY, USA, 1964.
54. Prusik, M.; Szulawski, M. The relationship between the dark triad personality traits, motivation at work, and burnout among HR recruitment workers. *Front. Psychol.* **2019**, *10*, 1290. [[CrossRef](#)] [[PubMed](#)]
55. Summers, N. Toronto Rejects Some of Sidewalk Labs' Smart Neighborhood Ideas. *Engadget*. 21 February 2020. Available online: <https://www.engadget.com/2020/02/21/sidewalk-quayside-waterfront-toronto-technical-evaluation/?guccounter> (accessed on 20 October 2020).
56. Matyszczyk, C.; Quoting Schmidt, E. The Internet Will Vanish Says Google's Eric Schmidt, CNET. 22 January 2015. Available online: <https://www.cnet.com/features/inside-the-dystopian-nightmare-of-an-internet-shutdown/> (accessed on 20 October 2018).
57. Hao, K. The Messy, Secretive Reality behind OpenAI's Bid to Save the World. *MIT Review*. 17 February 2020. Available online: <https://www.technologyreview.com/s/615181/ai-openai-moonshot-elon-musk-sam-altman-greg-brockman-messy-secretive-reality/> (accessed on 20 February 2020).
58. Hammerbacher, J. The Best Minds of My Generation Are Thinking about How to Make People Click Ads, Quote Investigator. 12 June 2017. Available online: <https://quoteinvestigator.com/2017/06/12/click/> (accessed on 20 October 2018).
59. Newton, C. We Finally Know Why the Instagram Founders Really Quit. *The Verge*. 17 April 2019. Available online: <https://www.theverge.com/interface/2019/4/17/18411363/why-instagram-founders-quit-hamburger-button-location-tracking> (accessed on 20 October 2019).
60. Wu, T. *The Attention Merchants: The Epic Struggle to Get Inside Our Heads*; Atlantic Books: London, UK, 2017.
61. Knowles, T. Self-driving car sees pedestrian 500m in front. *The Times*, 6 March 2020; p. 18.