

Society, industry, and technology are inseparable from one another. Technology transforms the material world. Individuals adopt technology for its convenience, which dictates both how and to what extent society embeds technology within its social fabric. Over the years, computers have developed so much so they have defined the 21st century as the digital era. Digital technologies have penetrated many industries, permeating much of social life and capital. In the meanwhile, globally, industry leaders continue to accumulate unprecedented wealth and social influence; short-circuiting demand for convenience per individual, industry has exploited the asymmetrical information landscape it has both established and arguably forced upon society. In return, this has prompted industry to channel more of its resources towards digital surveillance and for-profit behavioral subjugation, laying the groundwork for today's surveillance economy.

Amid an ever-so worsening climate crisis, levels of pollution continue to surge, threatening the very existence of not-too-distant future generations. In the meanwhile, the pioneers of digital automation appear to have paved themselves a path of infinite reward; today, economic inequality has reached levels beyond that observed during the gilded age. Democracy levels continue to decline globally at an ever-so-greater pace. Abject poverty remains a sickening reality for billions of people, whilst excess consumption accounts for the primary cause of the global ecosystem's accelerating breakdown. The return of pandemics, not to mention the widespread prevalence of hunger, homelessness, substance abuse, and suicide, across much of the developed and developing world alike, highlights the tipping point at which global society finds itself. Now, those with the means to hold the profiteers of digital automation accountable must decide: whether to endure much of these consequences, under the guise of ideological attachment to the traditional confines of capitalism — free-markets driven by the profit motive — or to reform the commercial landscape dominating the digital (and therein both material and metamaterial) sphere. The first requires maintaining legislative inaction; the latter demands expanding antitrust to disincentivize development upon the Web's structurally invasive elements (those facilitating surveillance) and, conversely, incentivize development upon the Web's structurally defensive iterations (those facilitating privacy).

Through my research, I examined propositions aiming to address the asymmetric information landscape the Web presently fosters. Comparing inventor of the Web Tim Berners Lee's Solid, networking engineer Arthur Brock's Holochain, and Stanford Senior Fellow Francis Fukuyama's proposed concept of Middleware, my research led me to discover various modes and corresponding visions of combatting shared concerns as to the Web's foundational structure and societal function. More importantly, through my research, I explored the potential for integrating various approaches to reforming the Web as well as the institutional and individual means necessary to facilitate any such reform. My research concludes — radical, structural, and therefore both digital, social, and material, reforms remain paramount to preserving the function and longevity of democracy, bolstering national security, and fundamentally negating global inequality.