

Review article



# A brief exploring the theoretical and contextual approach of the Financialization – Digitalization Nexus: From the Global Financial Crisis to the Pandemic Times

Un resumen que explora el enfoque teórico y contextual del nexo entre financiarización y digitalización: de la crisis financiera mundial a los tiempos de la pandemia

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**Abstract.** Even though financialization is not a recent phenomenon, it has benefited from the digitalization drive of the last decade and more recently with the global pandemic restrictions on human mobility that pushed for a wider acceptance and adoption of digital technologies that facilitated the datafication of business processes, the emergence of data as a new asset class and the creation of new channels for the provision of financial services. This article explores a theoretical and contextual approach linking digitalization and financialization from the Global Financial Crisis to the covid-19 pandemic. Financialization and digitalization, separately, are multidisciplinary fields of study with deep theoretical and conceptual apparatuses. Technological and sociological factors could contribute to the recent converging attributes of these two fields: the rapid diffusion of mobile technologies, the emergence of cloud-based services, and the ongoing process of financial globalization. Commentary on conceptual evolution is included, and potential empirical research avenues are suggested.

**Keywords:** financialization, digitalization, datafication, digital transformation.

**Resumen.** Aunque la financiarización no es un fenómeno reciente se ha beneficiado del impulso de digitalización durante la última década y, más recientemente, con las restricciones de pandemia global sobre la movilidad humana que impulsó una aceptación y adopción más amplias de tecnologías digitales, las cuales facilitaron la información de datos de los procesos de negocios, la aparición de datos como una nueva clase de activos y la creación de nuevos canales para la provisión de servicios financieros. Este artículo es una aproximación contextual y teórica de la relación entre la digitalización y la financiarización desde la Crisis Financiera Global hasta la pandemia por covid-19. La financiarización y la digitalización, por separado, son campos de estudio multidisciplinarios con profundos aparatos teóricos y conceptuales. Los factores tecnológicos y sociológicos podrían contribuir a los recientes atributos convergentes de estos dos campos: la rápida difusión de las tecnologías móviles, la aparición de servicios basados en la nube y el proceso continuo de globalización financiera. Finalmente, se incluyen comentarios sobre la evolución conceptual y se sugieren posibles vías de investigación empírica.

**Palabras clave:** financiarización, digitalización, datificación, transformación digital.

*“Software is eating the world...”*

Marc Andreessen

## Introduction

This article seeks to find a link between financialization and digitization, through a contextual and theoretical approach. “Financialization is the process through which financial markets, financial institutions, and financial elites have a larger influence in how economic policy is made and how the economy performs” (Liu et al., 2022, p. 3). Financialization is a complex and multifaceted phenomenon, it has captured the attention of scholars in a wide variety of academic fields. Sociology, (heterodox) economics, political science, accounting, geography, and other disciplines, have approached this intricate phenomenon that “defies disciplinary boundaries”. Financialization has happened in waves and with the mediation of socio-technical, cultural, and ideological forces (Salento, 2016). Recent academic works on the subject have identified the aftermath of the Global Financial Crisis (gfc) and the rise of Fintech as an inflection point in the evolution of this issue (Alt et al., 2018; Mader et al., 2020). Fintech is the portmanteau for finance and technology, its core value proposition is the disintermediation of three broad areas of finance, raising capital, allocating capital, and transferring capital. Most fintech startups usually target these areas in the financial value chain (Das, 2019).

On the other hand, the digitization concept is linked to the analysis of technical and technology. Consequently, this concept does not remain only in the industry; it is transferred to all the surroundings of people’s lives, being today a participant in the daily life of human beings. Most notably, it is the deregulation of industrial society for the new developments of society (Moreno-Salamanca, 2019).

In this matter, digitalization is defined as “the adoption or increase in use of digital or computer technology by an organization, industry, country or the way many domains of social life are restructured around digital communication and media infrastructures” (Brennen & Kreiss, 2016, p. 1). The digital transformation is changing human interaction. In this way, Byung-Chul (2021) proposes “the digital order puts an end to the age of truth and introduces the post-factual information society” (p. 65).

This article aims to explore a theoretical and contextual approach to the financialization – digitalization nexus starting from the aftermath of the gfc to the current times of the covid-19 pandemic. The choice of this temporal frame is deliberate, after the gfc there is a steep growth in scholarly publications on the issue of financialization (Mader et al., 2020). As regards the issue of digitization and digitalization, scholars have argued that starting from 2010, we are in a phase of “digital as new normal”, in which digital processes have been integrated as a “fact of business” and established business models have been restructured to include digitalization as a novel source of competitiveness (Martínez-Caro et al., 2020; Ritter & Pedersen, 2020).

During the last decade, cumulative investments in technological infrastructure, the ever-increasing datafication of everyday life, (data extracted from human usage, Internet of Things devices among others), and subsequently, given the vast amounts of available data, the training of a plethora of artificial intelligence and machine learning models (Anderson, 2008; The Economist, 2020), has created a vibrant ecosystem of digital innovations that could be framed as a Schumpeterian creative destruction process at the service of financial logics.

The current pandemic has accelerated the automation and digitalization drive in different sectors of the economy (Ding & Saenz Molina, 2020), the rise (and decline) of cryptocurrencies like Bitcoin, Ethereum among others, and the surge of online retail investing allowing thousands if not millions of new investors to play in global capital markets, the diffusion of the zero-commission brokerage, and social media enabled organization of “dumb money” (Akbas et al., 2015), as seen in the renowned case of GameStop and amc in the United States capital markets (Denier, 2021; Martin & Wigglesworth, 2021). In addition, digital and financial innovations such as digital assets known as Non-Fungible Tokens (nft) in the economics of the metaverse and the emergence of Web3 token-based economics applied to novel business models are the most recent evidence of the intertwining of finance and digital technologies.

The article is organized as follows: after the introduction, the first section discusses the extant literature connecting financialization and digitalization, and the second section discusses the datafication of everyday life or the creation of value via the harnessing of massive amounts of data, among them, user data and connected devices data, the third section discusses the linkages between digitalization and the organization of work.

## **The financialization- digitalization nexus literature**

As evidenced by Mader et al. (2020), the financialization literature has seen significant growth in the aftermath of the GFC with a clear dominance from the disciplines of heterodox economics and geography. However, these authors claim that the concept has spread beyond its traditional fields of research and faces two risks. On the one hand, the risk of conceptual dilution as diverse academic fields have embraced the concept thus requiring a “generic understanding of what financialization means” (Mader et al., 2020, p. 5), on the other hand, the opposite risk is conceptual solidification or a standardized definition becoming dominant in the scholarship covering the financialization phenomenon.

The seminal work by Gerald Epstein (cited by Cordilha, 2020) defines financialization as “the increasing role of financial motives, markets, actors, and institutions in the operation of the domestic and international economies” (p. 6), this definition precedes the GFC. A post-crisis definition by Aalbers (2017) provides a glimpse into the potential of financialization for structural change, “the increasing dominance of financial actors, markets, practices, measurements, and narratives, at various scales, resulting in a structural transformation of economies, firms (including financial institutions), states and households” (p. 3).

Digitalization has been linked with structural change in the financial sector, in terms of achieving operational efficiencies, the creation of new products and services, the reengineering of business processes, and the restructuring of traditional business models by leveraging technological tools (Werth et al., 2020) and for non-financial firms, the creation of organizational digital twins (Parmar et al., 2020). Digital technologies also have open opportunities for servitization or the transition from products to services and integrated solutions by manufacturing companies, thus aiming at additional value creation, and increased financial performance (Kohtamäki et al., 2020).

In addition, co-production and co-creation of value by “putting consumers to work” (Zwick et al., 2008) have been amplified by digital technologies. Digital servitization is particularly visible in the financial services industry (Manser Payne et al., 2021), but its applications are also seen in the industry and the public sector (Alam, 2020; Parida et al., 2019).

The study of financialization has been approached at the macro, meso, and micro levels as reported by (Mader et al., 2020; van der Zwan, 2014). The macro level usually analyzes the phenomenon in its macroeconomic implications and the dichotomy of state and market, the meso level at the corporate relations with financial markets, and the micro level at the “financialization of daily life.” The latter echoes the datafication of everyday life that will be discussed in section two of this document.

The conceptual framework provided by Lagoarde-Segot (2017), precisely considers the role of information technologies, along with the deregulation of economies and the rise of the shareholder value paradigm as the core for the analysis of financialization under a new research agenda. Digital technologies have been associated with firm performance, impacts on the cost structure (Verhoef et al., 2021), and efficiency gains in support functions such as tax planning (Klein et al., 2020).

Regarding the effects of digitalization on financialization, HA (2022) highlights the importance of digitization in financial inclusion in society. Although it is a phenomenon that has been gaining strength with the covid-19 pandemic crisis, the effects of this nexus between digitalization and financial development will have more micro and macroeconomic implications once there is more digital transformation and more human capital with digital skills. Digitalization and financialization, according to HA (2022), “influence the way companies operate worldwide and allow investors to achieve direct financing without traditional intermediation” (p. 2).

On the other hand, Liu et al. (2022) states that “corporate financialization is an intermediary in the relationship between digital finance and the commercial performance of real companies, and it is a microcosm of the economic movement from real to virtual” (p. 6). Digitization is an essential factor in driving the global economy’s future growth, as Klinge et al. (2022) argue, in turn, emphasizes that corporate financialization is key to the growth of financial assets of non-financial companies.

## ***“There’s an App for that”™ or the imperative towards the datafication of everyday life***

The datafication of life has a deep relationship with the concepts of information capitalism and platform capitalism. Firstly, information capitalism, according to Byung-Chul (2022), appropriates the techniques of neoliberal power. In addition, it exploits freedom and generates disciplined power. Thus, Byung-Chul (2022) proposes the concept of the panopticon. “The panopticon, with its isolated cells, is the ideal symbol of the disciplinary regimen. Under the information regime, surveillance takes place via data” (p. 11).

Secondly, platform capitalism based on the Srnicek (2019) approach, seen as the capitalism of the 21st century, is an advancing capitalism which has data as its core and raw material. Therefore, platform capitalism generates a degree of de-industrialization of the economy and the consolidation of immaterial work (Srnicek, 2019). As a result, the platform business is not built from scratch, but instead it has its foundations on traditional businesses and directly connecting customers, users, suppliers and its complete value chain.

Consequently, in 2009 Apple Inc. applied for trademark registration of this slogan “There’s an App for that”. In hindsight, this could be described as a self-fulfilling prophecy with the proliferation of smartphones, the lowering prices for mobile internet, and the evolution of complex digital ecosystems, most human activities are now mediated via digital technologies, and yes, there is an app for that.

The last couple of decades have been, to say the least, transformative in global financial markets. The technology sector has taken a dominant position in stock markets, and venture capital is favoring the “breeding of unicorns” or new ventures in technology-related fields with a pre-IPO (Initial Public Offering) valuation of at least one billion U.S. dollars (Griffith & Primack, 2015). According to Salim et al. (2014), a typical Fortune 500 company took 20 years to reach a billion-dollar valuation, Google achieved it in 8, Facebook in 5, Tesla in 4, Uber, Snapchat, WhatsApp, and Oculus Rift in less than 2 years. Leading technology firms nowadays boast massive market capitalizations, and the trend may be summed up in a well-known mantra: “data is the new oil” (The Economist, 2017).

A pertinent definition of financialization is provided by Krippner (2005): “a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production” (p. 174). Data is capital, according to Sadowski (2019) and value has been assessed through the lens of the datafication of everyday life and the view of personal data as a new asset class (Schwab et al., 2011). By this logic, the concepts of markets for data, data trading, data exchanges, data ownership, data governance, and data regulations have emerged as the most recent evolution of capitalism (Koutroumpis et al., 2020).

The datafication of everyday life reinforces the argument of this document on the financialization-digitalization nexus. Financialization is deemed “a set of voracious processes” with the evidence of its operational logic and values in multiple domains (Langley, 2020). A similar process was bluntly pointed out by venture capitalist Marc Andreessen almost a decade ago in an op-ed for the Wall Street Journal: “software is eating the world” (Andreessen, 2011).

According to Langley, post-structural theories of power may provide a coherent and critical research agenda for the study of the financialization of life. For the sake of the ongoing argument, the theorization of Foucault and Deleuze about the contemporary power relations could be extrapolated to the digital realm, in identifying the change in the “dominant logic of present-day capital” from profits accumulation via commodity production, towards rent and value capture (Langley, 2020), the same logics are evident in data extractive business models (Zuboff, 2019).

Digital technologies are also allowing the penetration of devices for monitoring and control, also known as quantified self-technologies into the workplace (Moore & Robinson, 2016). The quantified self-technologies allow the measurement of all kinds of metrics of individuals via wearables or specialized software; metrics can include productivity and performance-related indicators for the workplace. The post-structural thinking of Foucault could probably prove itself appropriate to address the contemporary power relations of the “algoticon” or the surveillance and control to extract the maximum possible value from different agents in digitized business operations or in digital peer-to-peer service platforms (Jamil, 2020).

An additional aspect of the digitalization- financialization nexus is the emergence of cryptocurrencies, a case study by Zook & Grote (2020) provides evidence on the interaction between financialization and digitalization by studying the Initial Coin Offering (ICO) of a startup. An ICO is the emission of digital coins or tokens (crypto assets) by leveraging the technology of blockchain distributed ledgers. The authors’ analytical framework consists of the description of the catalysts or enabling forces behind these events (e.g., technology, ideology, and sources of capital), the *cracks*, or the identification and creation of disintermediation opportunities in the value chain, and the *voids*, or the technology-induced gray areas in regulatory oversight.

As argued in the previous paragraphs, the rapid digitalization of everyday life is enabling faster, deeper financialization of the economy and society at large. The third section of this section will discuss how these financial and digital logics can be seen at work in what has been conceptualized as platform capitalism or the gig economy.

## Financialization- Digitalization and labor dynamics, doing more with less?

A shared theme in the financialization and information technology literature is the reduction of costs via the optimization of business processes (Aral & Weill, 2007) and the reduction of labor costs. From the economics literature, most empirical research regarding the effects of innovations, automation, and technological change on labor markets has been carried out in advanced democracies' private sector (Adams, 2018). However, the evidence is not homogeneous, studies carried out in diverse European countries have found mixed results regarding the effects of automation technologies and industrial robots on labor, but negative effects on ICT and artificial intelligence (de Nardis & Parente, 2021).

Probably the best example of financialization -digitalization nexus is found in business ventures classified under the label of platform capitalism (a.k.a. gig economy). Basically, and following Zook and Grote's framework, these ventures take advantage of the *catalysts*, identify the cracks in the value chains and exploit the regulatory *voids*.

The platform economy has been touted as a business model that achieves market efficiencies by leveraging digital technologies and enabling the entrepreneurial spirit of gig workers who participate in these platforms; however, these same platforms are seen as alternative ways for the precarization of work (Stefano, 2016), the exploitation of vulnerable demographic groups such as immigrants, and the pervasive use of surveillance and discipline techniques on this population of "gig entrepreneurs" (Revilla & Blázquez Martín, 2021).

In addition, gig work creates dual value to the platform administrators, monetary value for services rendered, and "speculative value of the data produced before, during and after service provision" thus making a strong case for the financialization- digitalization nexus argued in this contextual approach (van Doorn & Badger, 2020, p. 1476). Data extraction is seen as desirable for venture capital and impacts the financial valuations of companies that no longer trade based on fundamentals but based on speculation on the potential of turning captured data into money (Sadowski, 2020). A case in point is the widely criticized Goldman Sachs Non-Profitable Technology Index.

Furthermore, platform capitalism does not consider its workers as employees but as independent and entrepreneurial contractors that participate in the creation of value. This is problematic because gig workers usually lack labor protection mechanisms, must cover their own insurance, and bear the cost of the depreciation of the assets utilized for service delivery, which is not properly accounted for in the platform pricing system. This *void* or the regulatory arbitrage of this practice seems to be ending after the United Kingdom Supreme Court ruled that Uber workers are indeed employees, thus entitled to labor benefits such as paid holidays, minimum wage, and pension schemes (Ofili, 2021). Pending rulings are expected in other jurisdictions with deep implications for the core business model of these platforms (Butler, 2021; Morath, 2021).

## Conclusion and some remarks

This exploration of the nexus between financialization and digitalization is attempted in response to the call for further research on the subject matter (Currie & Lagoarde-Segot, 2017), aiming to find a cross-pollination of knowledge between academic disciplines such as sociology, economics, political science, and information systems. The impacts of the pace of digitalization imposed by the covid-19 pandemic are still to be determined, this is an opportunity to join the call for further exploration on this topic via case studies out of the Anglo-Saxon and European contexts.



There seems to be a logical and methodological connection between financialization and digitalization logic behind the current evolution of the economy and technology. The financialization logic is clearly visible in contemporary, digitally enabled, business models. Models that reinforce these logics in the accomplishment of their value propositions. In addition, the theorization of post-structuralist scholars regarding power relations and surveillance systems can be extrapolated to current affairs and the digital panopticon of modern-day living and working.

The argument of technology being neutral was put forward by Kranzberg (1986) with the corresponding riposte by Whelchel (1986), this debate was carried out almost four decades ago, before the diffusion of disrupting technologies such as the Internet, mobile devices, social media, and artificial intelligence. However, nowadays the debate seems more relevant than ever, and it is considered of utmost priority to elaborate on a critical stance towards technology and its effects on society.

The rise of retail investors as a remarkable force in the shaping of financial events is another trend that should not be ignored. Bearing in mind that the increased participation of retail investors has been possible due to the technology-enabled zero commission schemes and the usage of social media for organization and momentum.

With this brief exploration, we would like to hint at the several research avenues that may follow the empirical analysis of the conceptual constructs discussed above. Digital technologies may further the financial logic described above; the quantified-self movement may contribute to the creation of new business models based on users' data but raise questions about privacy concerns regarding data usage, data ownership, and data governance. As a temporary concluding remark, if software is eating the world, is finance devouring the economy?

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