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Knowledge capitalism: The legal enclosure of intangibles[1]

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Abstract: This paper examines the emergence of knowledge capitalism, an economic system in which intangible assets — such as knowledge, ideas and information — constitute the primary means of production and source of corporate value. It argues that the legal protection of knowledge through intellectual property rights (IPRs), particularly patents, has driven this change. While such rights incentivize innovation, they also generate monopolistic power, reinforce global inequalities and reshape competition by favoring corporations that hold many IPRs, particularly in the technology sector. The analysis reveals that patents serve as instruments of economic control, shaping markets, labor relations, and global trade, as well as merely providing legal protection. The TRIPS Agreement is an example of the globalization of this regime, which has institutionalized disparities between advanced and developing economies. Furthermore, the growth of artificial intelligence and cloud infrastructures exacerbates these monopolistic tendencies. Ultimately, knowledge capitalism perpetuates the traditional capitalist logic of accumulation, exacerbating inequality and raising urgent questions about the governance of knowledge and the equitable distribution of its benefits.
Keywords: Knowledge Capitalism; Intellectual Property Rights (IPRs); TRIPS Agreement; Economic Inequality; Monopoly Power; Artificial Intelligence; Globalization.

Resumen: Este artículo examina el surgimiento del capitalismo del conocimiento, un sistema económico en el que los activos intangibles —como el conocimiento, las ideas y la información— constituyen el principal medio de producción y la fuente de valor corporativo. Argumenta que la protección legal del conocimiento mediante los derechos de propiedad intelectual (DPI), en particular las patentes, ha impulsado este cambio. Si bien estos derechos incentivan la innovación, también generan poder monopolístico, refuerzan las desigualdades globales y reconfiguran la competencia al favorecer a las corporaciones que poseen numerosos DPI, especialmente en el sector tecnológico. El análisis revela que las patentes sirven como instrumentos de control económico, configurando los mercados, las relaciones laborales y el comer-

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1 My paper draws in parts on my recent monograph *Knowledge Capitalism* (2022); however, the paper also varies and extends the theoretical perspective and empirical basis found in the monograph.

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cio global, además de simplemente brindar protección legal. El Acuerdo sobre los ADPIC es un ejemplo de la globalización de este régimen, que ha institucionalizado las disparidades entre las economías avanzadas y en desarrollo. Además, el crecimiento de la inteligencia artificial y las infraestructuras en la nube exacerba estas tendencias monopolísticas. En última instancia, el capitalismo del conocimiento perpetúa la lógica capitalista tradicional de acumulación, exacerbando la desigualdad y planteando preguntas urgentes sobre la gobernanza del conocimiento y la distribución equitativa de sus beneficios.
Palabras clave: Capitalismo del Conocimiento; Derechos de Propiedad Intelectual (DPI); Acuerdo sobre los ADPIC; Desigualdad Económica; Poder Monopolístico; Inteligencia Artificial; Globalización.

> Monopolistic rights are the only sustainable competitive advantage. So, from the point of view of business, intellectual property rights are the ultimate key to success.
>
> Employee of a Patent & License Exchange Firm [2]

What the patent and licensing company employee quoted does not emphasize is that property rights continue to form the foundation of the modern economy, regardless of their allegedly unique and essential attributes [3] and therefore remain the essential right of the owner of the means of production. In knowledge capitalism, [4] it is increasingly the ownership of knowledge, or more broadly of intangible assets, that constitutes the basis of ownership and enables autonomous economic decision-making. Enclosing knowledge creates a «monopoly as a power relation [which] comprises both those enjoying and those deprived of what has been monopolized» (Rikap, 2023; 146).

Moreover, knowledge, ideas and information - to use rather general concepts that stand for (economic) intangible means of production – now constitute among the largest and growing corporate investments and driver of economic growth. In the United States, the gap between tangible and intangible investments has grown significantly between 2000 and today. The intangible investment intensity between 1995 and 2024 has grown globally as Figure 1 shows.

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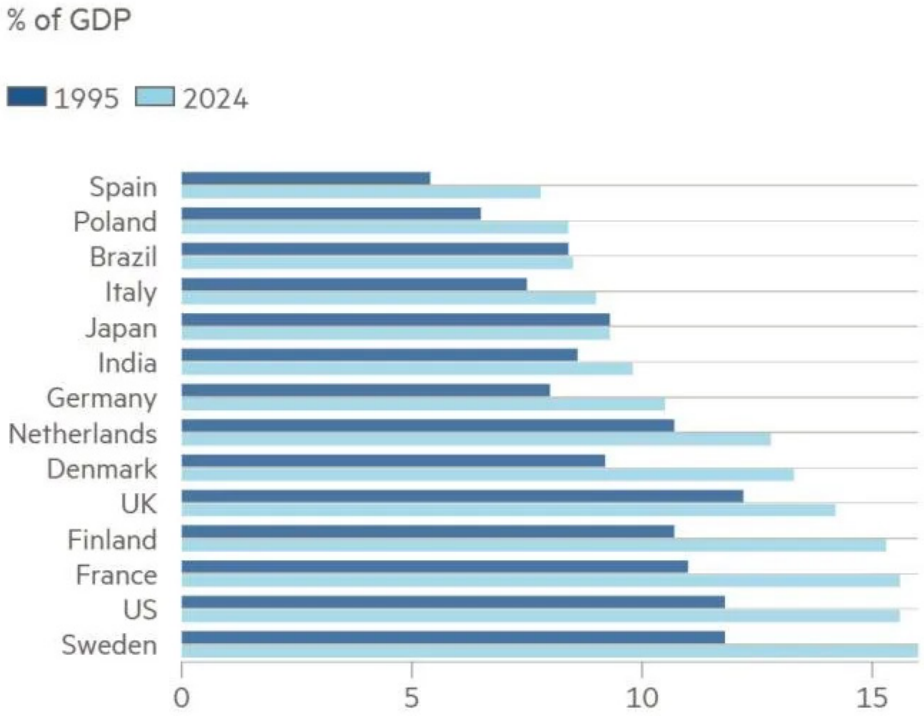
2 Source: «Patents; Putting a value on the intangible: Patents,» *New York Times* (online), December 18, 2000.

3 According to what is probably an incomplete count, the literature of modern capitalism during the last quarter century identifies more than thirty «capitalisms». The designation ranges from «Digital», «Platform», «Crony», «Distaster», «Climate», «Informational» to «Woke Capitalism».

4 The first use of the term «knowledge capitalism», as far as I can see, occurs in a monograph by Alan Burton-Jones (1999:224; 2003) entitled «Knowledge Capitalism: Business, Work and Learning in the New Economy». However, the term «knowledge capitalism» is never explained and seems to have been used more or less by accident.

Figure 1: Intangible investment has grown across the world, 1995-2024



Source: Tei Parikh, «Free Lunch on Sunday,» *Financial Times*. August 10, 2025.

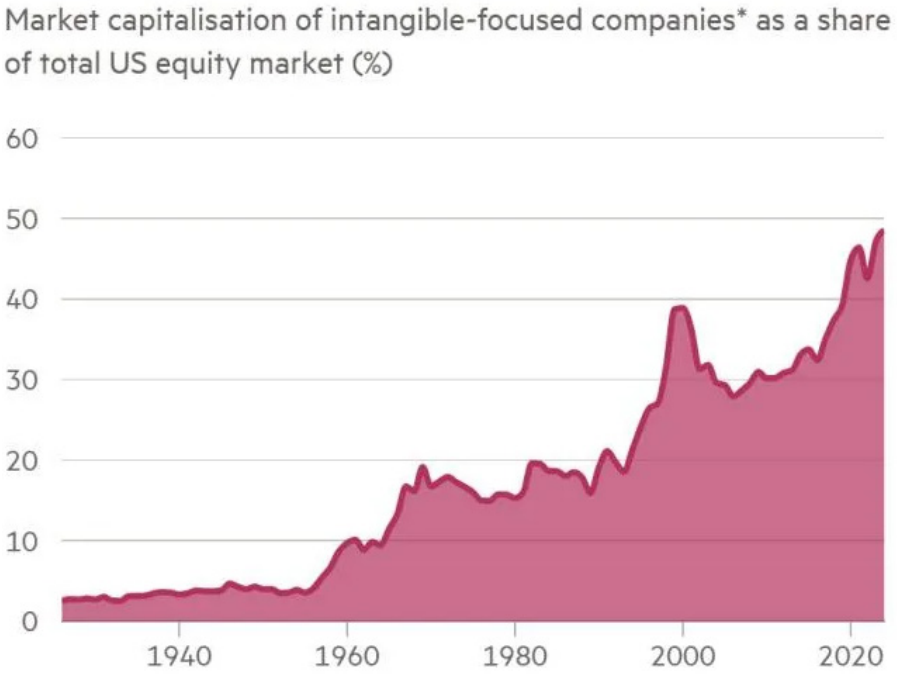
Non-physical assets have very different economic properties. This changes economic «laws» fundamentally. Intangibles are much more scalable. They have high upfront cost and zero marginal costs. Once the code is produced, for example, generating additional units of software cost nothing.[5] The separation of economic formations is never complete. Hence, knowledge capitalism continues to invest in physical assets: The economic benefits of large tech corporations, in the wake of the rapid growth of Artificial Intelligence, have extended to a new attribute of knowledge capitalism, namely the development of proprietary AI infrastructures (data centers) and services.

Private ownership of the means of production, as the distinguishing element of capitalism, does not by itself explain how the «dynamism» of capitalism is ensured over time and how it differs in this respect from one era of capitalism to the next.[6] The outcome of the shift in investment activity is a shift in the value of corporations that lead in tangible investment, as Figure 2 demonstrates in the case of the United States;

5 See Kai Wu, 'Intangible capital,» June 2021: https://blog.sparklinecapital.com/wp-content/uploads/2021/06/sparkline-intangible-value.pdf

6 David Soskice (2022: 323), for example, identifies three successive, massive waves of «radical technological and techno-organizational innovation» as well as their societal foundations over the past 120 years in the United States.

Figure 2: A rising share of U.S. corporate value emanates from intangible-led economic sectors, 1940-2020



Source: Tei Parikh, «Free Lunch on Sunday,» *Fincial Times*. August 10, 2025.

The term «knowledge capitalism» is justified in this context of these transformations because of the *persistent division* of ownership between actors and social collectives in knowledge societies. In this case, this division is increasingly evident in the ownership of patented or protected knowledge and in social relations with those who own only their labor. In other words, the designation for the emergent economic order as a *form of capitalism* continues to apply despite the fact that «the central function that knowledge plays in the production process *does not in itself* bring about a fundamental change in the economic and social system» (Gorz, 2002: 4; emphasis added). [7] The ruling capitalist economic order continues to champion self-interest and economic gain.

Nevertheless, a lively discussion that began in the 1990s (e.g., Jameson, 1992) is still ongoing, claiming that we are witnessing a shift toward a non-capitalist economic order (e.g., Rikap, 2023; Morozov, 2022). Surprisingly, liberal economic discourse has long neglected such state-granted/tolerated monopolistic privileges in its overall condemnation of monopolies (Blaug, 2005: 70). Capitalism continues to rely on extra-economic means of accumulation.

7 In a written contribution to the «*Gut zu wissen*» conference on the knowledge society, organized by Andreas Poltermann of the Heinrich Böll Foundation in Berlin in 2001 and which André Gorz was unable to attend in person, Gorz (2002) uses the term 'knowledge capitalism' without making any concrete attempt to specify and justify its attributes. I also found the term '*Wissenskomminismus*' (German for 'knowledge communism') in Grassmuck (2002), again without an explicit explanation of the choice of concept (also Spinner, 2002).

In contrast to the Fordist-era in which companies earn profits by controlling physical assets, large tech companies earn profits by controlling commodified intellectual capital. The solidity of the characteristics of knowledge societies (Stehr, 1994) is reinforced by law, in particular patent law, intellectual property law, copyright law and other laws that resemble legal restrictions on cognitive phenomena that constitute symbolic capital.

My discussion will focus on several significant issues in the theory of knowledge capitalism - with strong emphasis on the legal ways of «enclosing» knowledge. I will present my argument in several stages. Firstly, I will discuss how patents can be used to generate profit and drive the transformation of modern capitalism. Secondly, I will explore the concept of knowledge as patented capital. Finally, I will discuss what I call the *TRIPS Regime* as the international legal foundation of knowledge capitalism.

Patents used as swords

> Immediately and directly the patent right must be considered a detriment to the community at large, since its purport is to prevent the community from making use of the patented innovation, whatever may be its ulterior beneficial effects or its ethical justification.
> Thorstein Veblen (1908: 116)

The major legal changes that led to the development of knowledge capitalism in this century occurred in the 1980s, when stringent intellectual property laws were created in the United States through legal reforms. Not only is knowledge capitalism enabled by legal rules, but it is also aided by a lack of legal rules. For example,

«the growth of intellectual monopolies in the technology sector in the 1990s and early 2000s was also enabled by a policy vacuum, ranging from lack of regulation over who could harvest big data and what type of data could be harvested, to trade policies for digital services» (Rikap, 2023: 149). Given the speed at which frontier (additional) knowledge is generated and its increasing pace, legal responses will likely always be playing catch-up, allowing firms to generate uncontested profits for a considerable amount of time while lobbying the government to delay regulations.

Remarkably, the generalizing term «intellectual property rights» is of recent origin and covers a wide range of cognitive phenomena, as Mark Blaug (2005: 71-72) underscores: «It never occurred to anyone before, say the 1980s, that such disparate phenomena as patents for mechanical inventions, indus-

trial products and processes (now extended to biotechnology, algorithms and even business methods), copyrights for the expression of literacy and artistic expressions in fixed form and trademarks and trade names for distinctive services, *could be generalized under the heading of property rights*, all conferred by the legal system in relation to discrete items of information resulting from some sort of appropriate intellectual activity.» In the Fordist era,[8] companies made profits by controlling physical assets; at present, large technology companies, as shown in Figure 2, make profits by controlling intellectual capital.

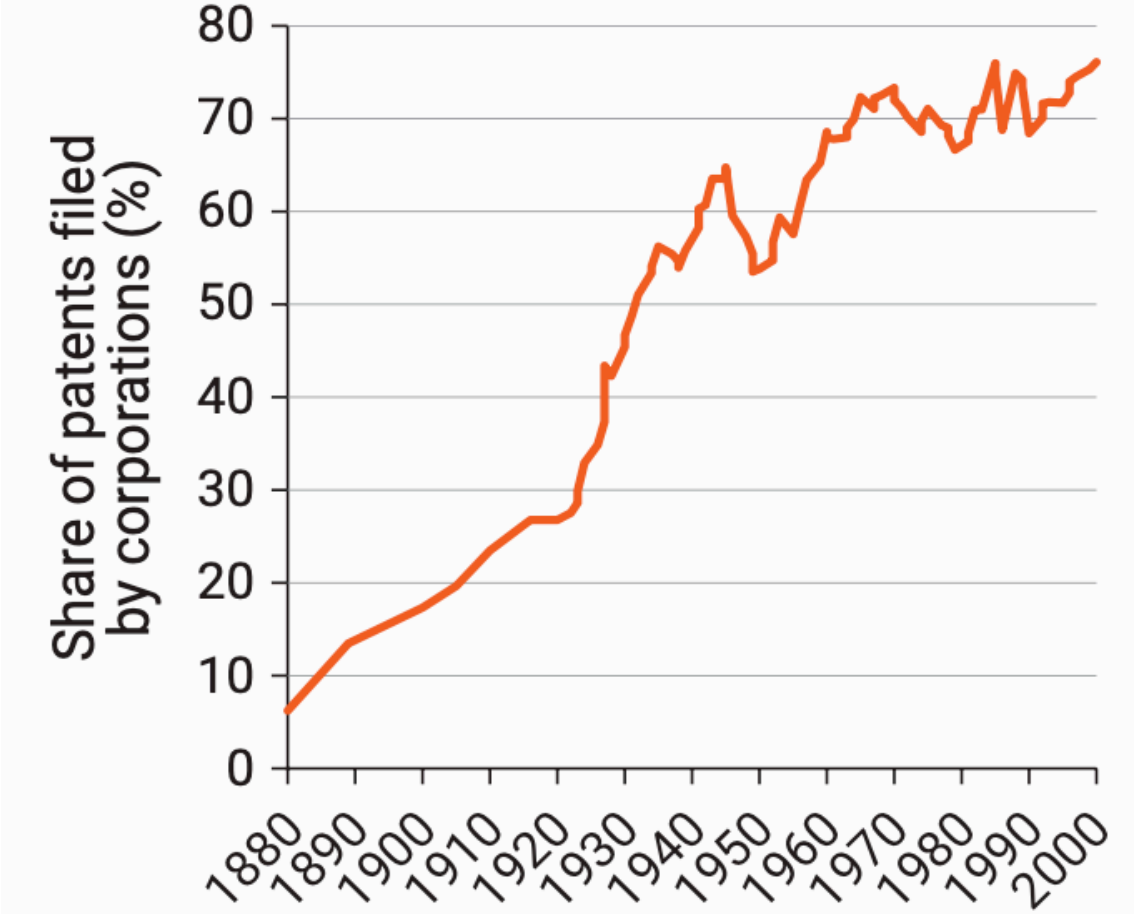
A restrictive, highly limiting protection of new (frontier) knowledge through patents, in the sense of low hurdles to patentability, can, if such patented knowledge is not evenly distributed globally, (1) quickly lead to *monopoly*-like conditions in certain organisations and societies. In such a case, economic control is in the hands of organisations that can afford to be innovative. (2) Importantly, today's typical patented innovations are not «revolutionary», stand-alone inventions, but *cumulative technologies* that are interdependent with existing technologies and their implementation in production. From a nation-state and from a global perspective it can be taken-for-granted, as James Galbraith and Jing Chen (2025: 34) emphasize, advanced «states often develop and enforce tough patent laws to create monopolies, whereas technologically less advanced states prefer a freer flow of knowledge and easy acquisition of new technologies.» The current legal framework and the typical innovation process can lead organisations and companies to specialize in those business areas where they have historically had an initial advantage in the form of existing patents. The owner of a patent can thus prevent competitors and interested parties from using this (complex) technology. (3) Filippo Belloc and Ugo Pagano (2012:445) draw attention to the economic and social consequences of internationally enforceable patent law:

> at the macro level […] countries rich of IPRs [Intellectual Property Rights] can prevent countries poor of IPRs from using their knowledge for production, with the possible consequence of generating a «snowball dynamics» according to which IP-rich countries exploit larger investment opportunities and acquire new (proprietary) knowledge, and IP-poor countries tend to stagnate in a low-investments/low-patents equilibrium.

8 The Fordist era refers to the period from the early 1900s to the 1970s. It was characterized by mass production techniques pioneered by Henry Ford. This era was defined by assembly-line production, standardizedts, high wages enabling workers to consume the goods they produced, and robust trade unions. This economic model created a virtuous cycle of mass production and consumption that dominated Western industrial economies until the 1970s, when it began to decline due to the shift towards more flexible production systems and globalization. Some firms in the post-Fordist era combine attributes of both economic systems, for example, Siemens in Germany.

(4) A patent is granted to the first actor to make a discovery (or apply for a patent). Under the regime of knowledge capitalism, a shift in who patents and thus 'creates' new knowledge continues and accelerates. The trend in patents granted is shifting away from small, independent innovators toward corporate research and development. In the United States, for example, the number of patents filed by corporations has skyrocketed in recent years as the figure demonstrates for patents issued in the United States.

Figure 3: The number of patents filed by corporations with the U.S. Patent Trademark Office



Source: Akcigit, Grigsby and Nicholas, 2017; World Bank 2024: 93.

(5) Without control over sufficient intellectual property, societies will have no choice but to gain economic advantage through low wage levels compared to countries that have accumulated more knowledge capital. Conversely, countries and companies that hold a disproportionate share of lucrative, globally protected patents, perhaps even a near monopoly, will capture a disproportionate share of global profits and national economic benefits. Diessner, Durazzi,

Kleider, Filetti and Simone Tonelli (2025), developed a knowledge economy index, covering 22 developed OECD economies from 1995 to 2019, based on six measures of technology and skills. The technology indicators measure the prevalence of information and communications technology, industrial robots, and patents (IP5 patent families per 10,000 employees), [9] the skills indicators measure the employment shares of highly-skilled occupations (i.e. managers, professionals, and technicians and associate professionals) in the labor market. The results show that there is a significant correlation between the patent indicator and the other measures of the Knowledge Economy Index.

Global profits in recent years have been dominated by U.S. firms with robust intellectual property rights. [10] The profits generated are disproportionately large compared with the US share of the world economy, whereas the share of German and Chinese firms is relatively small: «US firms account for 33.9% of cumulative profits generated by the 3795 firms ever appearing on the Forbes Global 2000 list from 2006-2018 and firms in sectors characterized by robust IPRs account for a disproportionate 26.6% of those profits. This disproportionate share of global profits ensures that US firms -- though not necessarily average US incomes or even less so worker incomes -- have differential growth relative to foreign competitors» (Schwartz, 2019: 507). [11]

To the extent that it is possible to document that income from capital (non-human factors) and income from labor (human factors) develop in opposite directions in favor of capital assets, this casts a skeptical light on the so-called *Kuznets hypothesis* (1955:1), which focuses on the «character and causes of long-term changes in the personal distribution of income». A prognosis

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9 Source: OECD Directorate for Science, Technology and Industry - Patent Database for number of patent families; EUKLEMS & INTANProd Database - Release 2023, Luiss Lab of European Economics for number of employees. IP5 patent families are a standardized way of grouping related patent applications that are filed in multiple countries. The «IP5» refers to the five largest intellectual property offices in the world:

1. The United States Patent and Trademark Office (USPTO)
2. The European Patent Office (EPO)
3. The Japan Patent Office (JPO)
4. The Korean Intellectual Property Office (KIPO)
5. The National Intellectual Property Administration of China (CNIPA)

A patent family is created when the same invention is protected by multiple patent applications filed in different countries. An IP5 patent family specifically means that equivalent patent applications for the same invention have been filed in at least two of these five major patent offices.

10 In recent years, major acquisitions of patent pools include Google's (defensive) purchase of approximately 17.000 patents from Motorola Mobility for 12.5 billion $ and Microsoft's acquisition of Nokia's patents for 5.4 billion dollars.

11 The so-called «*Magnificent Seven*», a group of tech powerhouses: Those companies and their current market caps as of August 30, 2025 are: Nvidia: $4.4 trillion; Microsoft: $3.7 trillion; Apple: $3.3 trillion; Alphabet (NASDAQ: GOOG)(NASDAQ: GOOGL): $2.5 trillion; Amazon: $2.4 trillion; Meta Platforms (NASDAQ: META): $1.9 trillion and Tesla: $1.1 trillion.

that Simon Kuznets (1955:26-28) himself considered fragile, despite the extensive empirical data he mobilized for the first time. In short, the hypothesis formulated by Kuznets with explicit caution states that income inequality in capitalist societies will stabilize at an acceptable level, regardless of national characteristics. Sooner or later, in an optimistic scenario, the entire population will benefit from economic growth.

At the beginning of industrialization, the concentration of income grows, only to decrease and level off as the economy develops. The course of inequality thus follows a kind of Bell curve. The development described above is the result, for example, of the shift of workers from the generally low-paying agricultural sector to the better paying industrial sector: «In a sense, Kuznets' theory can be viewed as a sophisticated formulation of the standard, trickle-down view of development: innovations first benefit a few individuals and eventually trickle down to the mass of the people» (Piketty, 2006: 64).

Thomas Piketty criticized Kuznets' explanation. In a sociology of knowledge frame, Piketty ([2013] 2014:14-15) identifies «the theory of the Kuznets curve as «a product of the cold war» and explains instead that «the sharp reduction of income inequality that we observe in almost all the rich countries between 1914 and 1945 was due above all to the world wars and the violent economic and political shocks they entailed (especially for people with large fortunes). It had little to do with the tranquil process of intersectoral mobility described by Kuznets.» One research question that at least some economists have been asking recently is whether a second wave of the Kuznets theorem might occur; out of the persistent increase in social inequality, a new alignment of social differences might follow in the future present (e.g., Milanovic, 2016). In contrast, Piketty has observed increasing social inequality in economically developed countries since the 1970s. He is convinced that capitalism has a natural, systemic tendency to increase inequality. Recently, the rate of profit has exceeded the growth rate of the economy, becoming increasingly larger than only the growth rate. This trend was typical until the First World War and is likely to be repeated and even intensified in the coming decades (Piketty, [2013] 2014: 224, 358).

What does this mean for our question about the distribution of the gains generated by enclosed knowledge? Not very much. Unless we assume that the increase in the rate of profit of capital is due to the use of privatized additional knowledge, and highly specialized knowledge-based skills, the benefits of the rate of profit may be unequally distributed.

Knowledge as patented capital

> The errors and contradictions of the prevailing school [i.e., J. B. Say and Adam Smith] can be easily corrected from the standpoint of *the theory of the productive powers*. Certainly those who fatten pigs or prepare pills are productive, but the instructors of youths and of adults, virtuosos, musicians, physicians, judges, and administrators, are productive in a much higher degree. The former produce *values of exchange*, and the latter *productive powers*.
>
> Friedrich List [1841] 1856: 221

The political economist Friedrich List (1789-1846) – as well as Karl Marx in his *Grundrisse* [12] -clearly described knowledge and skills as productive forces needed to produce any good or service. Productive powers have an elective affinity with Karl Polanyi's concept of 'fictitious commodities': In *The Great Transformation* ([1944] 2001), Polanyi introduces the concept of 'fictitious commodities' to critique the market economy's treatment of essential elements of human life as ordinary commodities produced for sale. According to Polanyi, land, labor and money are not real commodities because they are not produced primarily for sale in the marketplace. As a capacity to act, knowledge has the characteristics of a fictitious commodity. However, this does not prevent productive powers from being commodified. Importantly, legal rights to knowledge allow it to become tradable capital.

A patent covers a new invention, not a discovery (genes cannot be patented; see Contreras, 2021). In return for the legal enclosure, the patent holder must disclose the knowledge that is protected. Patent laws typically make assumptions about «where new inventions will be made, who will create them, and how they will be infringed» (Robinson and Smith, 2018: 355). Patents reduce competition. Depending on the patented resource and in terms of economic impact, patents on knowledge capacities confer:

12 The conception of knowledge privileged by Karl Marx ([1939--1941] 1953: 594) in his *Grundrisse* as «the general knowledge of society» (*das allgemeine gesellschaftliche Wissen*) is a static defintion of knowledge. In other words, societal knowledge represents the general, accumulated education level in society. As Marx emphasized, humans themselves become *capital fixes*. Humans invest in themselves. Hence, the Marxian definition of knowledge is similar to the idea of fixed human capital.

1. Market power -- markets without *exclusion* are not markets -- (extracting [monopoly] rents; concentration, decline of competition, productivity growth constant or decline; concentration of research and development; significant corollary (concurrent) benefits; global imbalances). Most significantly, knowledge capitalism is dominated by IPR-rich corporations that strive to obtain monopoly/oligopoly profits. Within their field of activity IPR- rich firms achieve the bulk of the profits (Schwartz, 2024). [13] David Autor and colleagues (2020: 703) reported that the increase in market concentration is most noticeable «in industries that experience more rapid technological change as measured by the growth of patent intensity.»
2. Barkai (2020: 2460) reported that «increases in industry concentration are associated with declines in the labor share. Taken as a whole, my results suggest that the decline in the shares of labor and capital are due to a decline in competition.» Michele Boldrin and David Levine (2013:3) who have extensively made the case against patent laws argue that «there is no empirical evidence that [patents] serve to increase innovation and productivity, unless productivity is identified with the number of patents awarded – which, as evidence shows, has no correlation with measured productivity.» Concurrent or by-products benefit for patent holders, especially those derived from internet dominance or control (algorithms), such as those harvested from the use of the internet by customers of hard devices or from the use of software on hard devices that can be utilized for business purposes but do not have to be shared. Concrete figures that illustrate the dominance of the superstars on internet traffic: «The big five internet giants – Google, Amazon, Facebook, Netflix and Microsoft – currently account for nearly 60 percent of all ‚prime-time' [identical with the classical prime-time television period] traffic» (Winseck, 2019:106). Whether the internet is, as once was the consensus, a source of emancipation or, as now increasingly feared, a source of repression and control is a function of who monopolizes access to the information of the internet

13 Oligopolistic tendencies in the U.S. economy are not a novel feature, they were a characteristic of the era of the so-called rubber barons (e.g., the Astors, Carnegies, Rockefellers, and Vanderbilts) between 1870 and 1900. Mark Twain called it the «Gilded Age». Extreme wealth inequality has remerged as a pressing political concern in the United States, and elsewhere. Are the families at the top of the wealth distribution in the gilded age still at the top of the wealth hierarchy? Priti Kalsi and Zachary Ward (2025) estimate «that most extremely wealthy individuals drop out of the top tail within their lifetimes. Yet, elite wealth still matters. We find a non-linear association between grandparental wealth and being in the top 1%, such that having a rich grandparent exponentially increases the likelihood of reaching the top 1%. Still, over 90% of the grandchildren of top 1% wealth grandfathers did not achieve that level.»

(see Stehr and Adolf, 2017:175-187). Patents enhance market power; as a result, «many patents (and the research behind them) are focused not so much on producing a product that is better, valued more by consumers, or cheaper, but rather on enhancing market power, e.g., by extending market dominance» (Stiglitz and Greenwald, 2014: 251).[14]

3. Moreover, globally enforceable intellectual patents change property relations because unlike «traditional forms of private property that interfere with the liberty of the individual in a limited physical space, intellectual private property involves a *global limitation* of the liberties of the other individuals. Thus, the enforcement of intellectual property became effective only when it became global» (Pagano, 2013: 349); emphasis added). Moreover, patents
4. implement the ability to produce new knowledge by effectively blocking market access by protecting relevant, needed knowledge with patents, that is, by privatizing knowledge (see Drahos and Braithwaite, 2002).
5. Market power influences the risk behavior and investment in research and development of these companies. In addition, patents can
6. Influence on the labor market up to the possibility of *monopsonies*, i.e., only one buyer for certain special knowledge skills emerges (e.g., in biotechnology, computer science, artificial intelligence). The power over the labor market, in turn, has a number of economic and social consequences, which can range from determining the income of employees to consequences for the educational system. Patents can
7. Increasing the degree of market concentration and a lack of competition for access to the market (across the world, which makes international taxation and competition policy especially important, cf. Korinek and Stiglitz, 2021; Zucman, 2015); [15] for example, under conditions of a health emer-

14 As Stiglitz and Greenwald (2014: 251) explain, one tactic this takes «is called 'evergreening,' where a patent holder makes what are fairly obvious slight improvements in the product (drug) to extend the patent and, thus, the firm's market dominance. For instance, a pharmaceutical company, toward the end of the lifetime of a patent, introduces and patents a timed-dosage variant of the pill. Because of the patent, no other producer could have done so. And because the timed-release version is preferred, the effective life of the patent is greatly extended.»

15 The number of «triadic family patents» (that is, «A triadic patent family is defined as a set of patents registered in various countries (i.e., patent offices) to protect the same invention. Triadic patent families are a set of patents filed at three of these major patent offices: the European Patent Office (EPO), the Japan Patent Office (JPO) and the United States Patent and Trademark Office (USPTO). Triadic patent family counts are attributed to the country of residence of the inventor and to the date when the patent was first registered. This indicator is measured as a number«) has been steadily and significantly on the increase since 1985 (cf. the OECD calculation: https://data.oecd.org/rd/triadic-patent-families.htm).

gency such as the pandemic of 2020 and 2021, patent enforcement restricts the ability of poorer nations to gain timely access to vaccines to produce vaccines locally. Tech giants can, in addition to the enormous financial resources they control, leverage access to their data and network punishing or rewarding start-ups based on their patents. [16] The United States, Britain, Canada, Switzerland, Norway and the European Union, among others, are blocking a proposal from October 2020 at the *World Trade Organization* «put forward by India and South Africa in October, [that] calls on the WTO. to exempt member countries from enforcing some patents, trade secrets or pharmaceutical monopolies under the organization's agreement on trade-related intellectual property rights, known as TRIPS.» As reported by Achal Prabhala, Arjun Jayadev and Dean Baker in the *New York Times*, [17] the U.S. trade representative is reported to have said that protecting intellectual property rights and otherwise «facilitating incentives for innovation and competition» was the best way to ensure the «swift delivery» of any vaccines and treatments. The European Union has argued that there was «no indication that intellectual property rights issues have been a genuine barrier in relation to Covid-19-related medicines and technologies.» The British mission to the WTO agreed, characterizing the waiver proposal as «an extreme measure to address an unproven problem.» The economist Joseph Stiglitz (2015: 254) maintains, however, that the TRIPS agreements were «not driven by a broad focus on enhancing societal innovation or even well-being [… but] were designed to maximize rents of the entertainment and pharmaceutical industries.»

8. Patents have an impact on the economic cycle: shifting investment opportunities through the growing impact of knowledge privatization contributed to the 2008 financial crisis (see Pagano, 2014:1419-1420);
9. Patents represent a financial asset; [18] patents increase the differentiation of individual earnings; *income* inequality between wage earners and those who own shares in corporations increases (see Korinek und Ng, 2019: 3);
10. Internationally sanctioned patents help co-determine *wealth* inequality in modern society through unearned income. The wealthy classes of society

16 Mark Lemley and Matt Wansley,«How bis Tech is killing innovation,» *New York Times*, June 13, 2004; https://www.nytimes.com/2024/06/13/opinion/big-tech-ftc-ai.html?searchResultPosition=1

17 «Want vaccines fast? Suspend intellectual property rights,» *New York Times*, December 7, 2020.

18 As financial assets, what counts in the case of patents is the property right itself as a financial vehicle and not the patented invention, that is, «the future return expected on the intellectual property right as a forward-looking investment vehicle» (Kang, 2020:53).

earn a substantial part of their income not as a result of their work, but as a function of their assets. The significance of these earnings increased after 2000 (Piketty, Saez and Zucman, 2018). Asset-based income is more skewed than labor income and therefore magnifies economic inequality (cf. Hoffmann, Lee and Lemieux, 2020:56-60). Information about asset income as the basis of wealth ignores the conditions for the possibility of wealth. The prerequisite of partaking in profits is funds that can be invested in or generated on the basis of funds that are borrowed. [19]

11. Patents can, in a self-propelling fashion, increase the pressure to multiply economic rents by enhancing the domain of additional knowledge that can be fenced in.[20]

12. Although knowledge/intangibles have always been a major source of economic achievement, intellectual property rights are now the main source of economic growth and corporate value (e.g., Heer, Cerilli, Kutsyna, Latoszwewska, Minecan, and Huong, 2024).

13. Patent-rich corporations «have less need and face less pressure to invest in new productive capacity. By definition, monopoly means that they face limited competition. While their 'investment' does include things such as massive server farms and sometimes even production equipment, most of their capital formation is simply paying salaries to people doing R&D. Neither brand management nor software development is particularly physical capital intensive. Virtually no capital investment is needed to expand production» (Schwartz, 2021b).

14. Finally, it is important to address, in this context, the political power of corporations or the economic meta-power of large firms (Beck, 2011: 288-290) which is strengthened not least by their ability to convert protected

19 Emmanuel Saez and Gabriel Zucman (2016) tax data show that 90 percent of wealth (or capital income) in the United States is owned by the top ten percent and approximately 50 percent by the top 1 percent.

20 The notion of «over-fencing» as employed by Paul David (2000) would be a case on point, that is, «the erection of artificial cost barriers to the production of reliable public knowledge by means of reliable public knowledge [public data sets].»

assets into political privileges, [21] effectively reducing the socio-political control exercised by ordinary citizens and governments. [22]

Hence, knowledge capitalism amounts to «*political capitalism*»: Max Weber ([1922] 1978: 638) describe the process of the convergence of profits, legal frames and market monopolies explicitly: « Capitalistic interests thus favour the continuous extension of the free market, but only up to the point at which some of them succeed, through the purchase of privileges from the political authority or simply through the power of capital, in obtaining for themselves a monopoly for the sale of their products or the acquisition of their means of production, and in thus closing the market on their own part.» Private ownership of the productive asset of knowledge creates wealth inequalities embedded in monopolistic advantages that generate political power.

Under knowledge capitalism, the potential conflict is often no longer between *management* and *owners*, as was widely discussed during the reign of industrial society (e.g., Lindblom, 2001: 82-83), but between *owners of different types of shares*. The existence of dual class voting shares in the United States allows for stocks with different voting powers. Dual class shares allow founders or key insiders to retain control over the company, even if they own a minority of the equity. This is achieved by issuing different classes of shares, typically one with superior voting rights (e.g., 10 votes per share) and another with inferior voting rights (e.g., 1 vote per share). Shares with multiple votes attached to them therefore typically enhance the power of founders, early investors and top management.

The solid equation of wealth and power persists under knowledge capitalism and repeats the nature of the linkage that originates under capitalism, as Karl Mannheim (1930: 466), for example, points out -- obviously not referring to the state of power relations in the United States in 2025 -- following Werner Sombart's observations about the genealogy of forms of capitalism: «Instead of the former [pre-capitalistic] wealth of power, the power of wealth is increasingly taking hold. This difference means that in the past, power also meant wealth, because power could be used to acquire wealth, but now wealth also means

21 See Theodore Schleifer and Kenneth P. Vogel, «*A Euphoric Tech Industry Is Ready to Celebrate Trump and Itself*,» *New York Times*, January 16, 2025 about the efforts of High Tech firms to ingratiate themselves to the Trump administration.

22 Cowgill, Prat and Valletti (2024: 40) investigated whether firms with market power will also attempt to gain political power. To explore this hypothesis empirically, the authors combine data on mergers with data on lobbying expenditures and campaign contributions in the U.S. from 1999 to 2017. Their findings confirm «that firms increase lobbying after mergers. This pattern survives a number of robustness checks and alternative explanations. The association is stronger for mergers involving large firms, and for mergers involving firms in the same industry.»

power, because those who have money can secure positions of power.» The political power of businesses, especially large and very rich private corporations, allows legally fictitious persons to effectively lobby governments and citizens alike to address their plans. [23] As political scientist Charles Lindblom (2001: 236) who is one of the few political scientists who have intensively discussed the mutual link between politics and markets, cautions, because «market systems produce inequality of income and wealth, they obstruct democracy.» [24] That authoritarian governments also produce inequalities in factor incomes does not contradict the conclusion about wealth and democracy. Large corporations in knowledge capitalism are among the main sources of asymmetric public and political influence, privileges and rights in democratic societies. The influence of the wealthy class and major tech corporations extends in some countries, most certainly in the United States to their growing weight in the *media* industry.[25] The political views of ordinary citizens as a rule have hardly any immediate influence on the policy-making process (cf. Page and Gilens, 2017: 114-118). The dilemma of course is that the political class, in its own interest, cannot be indifferent to how the economy performs (cf. Lindblom, 1973: 172).

In addition to the various consequences of the legalization of knowledge in the form of patent rights, there is the social mobilization function, which finds its expression in social movements of resistance against a monopolization of knowledge (for example open source and open access activities). The economic significance of intellectual property rights and their stratification by country can be removed from the following table which documents the highly uneven benefits different countries gain from the rights they command. In 2023, the United States was by far the largest beneficiary, whereas Russia hardly received funds from abroad for the intellectual property controlled by the country. Ac-

23 In a set of critical comments on the state of the field of economics, Angus Deaton (2024) comments on the lack of attention given to political power in economic theorizing and research: «our emphasis on the virtues of free, competitive markets and exogenous technical change can distract us from the importance of power in setting prices and wages, in choosing the direction of technical change, and in influencing politics to change the rules of the game. Without an analysis of power, it is hard to understand inequality or much else in modern capitalism» (also Schaake, 2024).

24 As Charles Lindblom (1995: 686) points out elsewhere, political science has sufficiently examined market impact on democracy but economists «tell us, simplistically, sometimes even dogmatically, that democracy cannot survive without help from the market.»

25 Large tech companies dominate the digital advertising ecosystem. Google and Meta together account for more than 50% of global digital ad spending in 2023. Total digital ad spending will exceed $500 billion in 2023. In addition, tech giants have become the primary gateways for media consumption. Companies such as Apple, Amazon, and Google have expanded their presence in subscription-based content through services such as Apple News+, Prime Video, and YouTube Premium. Large technology companies have acquired media assets: Amazon, for example, purchased MGM Studios in 2022 for $8.5 billion. Wealthy individuals have acquired mainstream newspapers (e.g., the Washington Post).

cording to figures collected by the World Bank, the volume of world receipts for intellectual property in 2023 increased to $ 486 billion. [26] The receipts for China continue to rise, but from a small base. The return for the United States increased but at a slower pace to $US 134 billion. The largest relative gainer between 2010 and 2023 was China, which now receives $ US 10 billion.

Table 1: Charges for the use of intellectual property receipts (BoP, current US $), 2019*

	2000	**Δ**	**2010**	**Δ**	**2023**
World	80.746.000	+190%	234.207.000	+108%	486.594.447
Korea	701.500	+780%	3.188.000	+184%	9,057,000
Sweden	1.414.000	+311%	5.813.000	+62%	9.405.097
France	3.974.000	+243%	13.625.000	+27%	17.237.156
Germany	2.536.000	+885%	24.972.000	+88%	47.010.035
China	80	+1000%	830.483	+1222%	10.977.275
UK	6.749.000	+270%	24.972.000	+10%	27,453.966
Japan	10.227.000	+161%	26.680.000	+91%	51.023,.734
Netherlands	2.170.000	+1051%	24.972.000	+155%	63.753.136
Canada	2.324.000	+21%	2.814.000	+157%	7.242.309
USA	43.476.000	+118,5%	94.968.000	+42%	134.441.000
RoW	7.900.000	+444,5%	43.000.000	+85%	79.500.000

*(ROW = Rest of the World; World minus total of charges of the listed, selected countries)

Source: World Bank https://data.worldbank.org/indicator/BX.GSR.ROYL.CD. Own calculations. Charges for the use of intellectual property are payments and receipts between residents and nonresidents for the authorized use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs including trade secrets, and franchises) and for the use, through licensing agreements, of produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works, and sound recordings) and related rights (such as for live performances and television, cable, or satellite broadcasts).The data are in current U.S. dollars.

Moreover, patents have the effect that the production of additional knowledge, research and development, for example, can be *separated* from the application of newly gained knowledge in production or elsewhere. Knowledge is converted into private property by patents and is scarce in the legal sense. A meaningful argument can be made that internationally enforced patent law is one of the engines of contemporary economic globalization in the sense of the conditions for a concentration of economic dominance and hence economic dependence as an attribute of globalization.

Patents can accelerate but also delay the global diffusion of new drugs, in the same way that excessive or limited patenting can delay the creation of novel knowledge. Extensive patent protection speeds up diffusion, whereas

26 https://data.worldbank.org/indicator/BX.GSR.ROYL.CD

price regulation policies for new drugs delay the marketing of new drugs. In short, patent rights have an important impact on the diffusion of innovations across the world. One large study shows that, «all else equal, longer and more extensive patent protection strongly accelerated diffusion, whereas price regulation delayed it. Health policy institutions, and economic factors that make markets more profitable, also sped up diffusion» (Cockburn, Lanjouw and Schankerman, 2014: 26). These findings hold for both developing and high-income countries.

The patent owner must ensure that his patent is not «abused». In principle, this is particularly difficult under the conditions of globalization. Sustainable legal enforcement of patent rights was not possible until the 1980s. Until approximately the middle of the 1980s, the number of patents applied for in the USA was largely stable. In 2015, the number of patent applications and the number of patents granted in the USA increased sixfold. This explosive development in patent numbers likely due to TRIPS also applies to many other countries (see also table 1). Jeffrey Funk (2018:50) estimates that the cost for applying for a patent in the United States could reach $50,000 -- perhaps distracting many companies from applying, in the first instance.

The TRIPS Regime

With the TRIPS (*Trade-Related Aspects of Intellectual Property Rights*) agreement, as a prime example of the extension of social action, signed in Marrakesh, Morocco April 15, 1994, representing a solidification of a global economic order that had been in the making for decades mandatory for all members of the WTO (World Trade Organization), patent law moved from arcane law and legal analysis to the forefront of global *policy/politics* and should also be at the center of the societal analysis of geopolitics, economic development, national inequality and globalization (cf. Sinnreich, 2019). [27] The TRIPS agreement represents, for the first time, a globally enforceable protection of intellectual

27 The TRIPS agreement was negotiated among WTO member countries during the Uruguay Round of trade talks, primarily driven by government representatives. However, ccorporations, particularly in sectors like pharmaceuticals (Pfizer) and technology (IBM and Microsoft), were involved in lobbying efforts and influenced policymakers during the negotiations. Their interests aligned with the push for stronger intellectual property protections, as they stood to benefit from robust patent laws and protections for their innovations (cf. May, 2000; Coriat and Ors, 2002; Sell, 2003). Prior to 1995, multilateral treaties, widely regarded as «toothless» in the face of piracy, for example, were overseen by the *World Intellectual Property Organization (WIPO)* (cf. May, 2006: 93).

property rights. Whether the TRIPS agreement within the WTO will last and withstand efforts to dismantle it is an open issue for the future present. [28]

Aram Sinnreich (2019:155-156) lists the most important legal *extensions* of patent law that the TRIPS agreement generated, as well as the enforcement measures and sanctions that are part of the agreement: «The new laws imposed by TRIPS included new forms of intellectual property (such as semiconductor chip rights), new categories of protected expression (such as software, databases, and sound recordings for copyright and «virtually all subject matter» other than living organisms for patents), longer minimum terms for both copyrights (life plus fifty years) and patents (twenty years), mandatory enforcement protocols within member states and at borders, and mandatory criminal punishment, including imprisonment, for some forms of infringement (historically, IP has been considered more of an issue for civil law, which seeks compensation rather than punishment from those who have violated it).» In sum, successive revisions of the global intellectual property rights regime tend to enhance the protection enjoyed by rights holders.

The adoption of TRIPS as a multilateral, enforceable, global intellectual property protection regime can justifiably be called «one of the most dramatic instances of international market regulation in the twentieth century» (Sell, 2010:762), which continues to be of growing significance beyond the last century. One of the highly contested issues of the TRIPS agreement is that it only requires countries to provide «minimum» standards of intellectual property protection. [29] This meant that signatories to the agreement were able to flexibly support enforcement. To enhance stricter protection of intellectual property rights, bilateral and regional preferential trade agreements increasingly included IP provisions. However, this matter continues to be an essentially contested issue last but not least because encircling knowledge is a contest about different value commitments.

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28 See «*'The WTO Is Toast.' What Happens to Global Trade Now.*President Trump, who disabled the World Trade Organization during his first term, is going after international free trade rules in place since the 1940s,» *New York Times*, February 14, 2025; https://www.nytimes.com/2025/02/14/business/trump-tariffs-world-trade-organization.html

29 Article 7 (Objectives) of the TRIPS agreement states: «The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.» Article 8.2. adds: «Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.»

A decision perhaps almost comparable in importance to the TRIPS agreement for patent law was the 1988 legal opinion of the U.S. Supreme Court to grant patents on life, the so-called «onco mouse» (see Shiva, 2001: 1-3). The patentability criteria have generally been relaxed during the last forty years. In the United States, the intellectual property rights regime opened up to software patents and business models, on the one hand, and living matters, on the other hand.

During the Uruguay Round (from 1986-1994 involving 123 contracting parties), well-organized groups of (multinational) corporations, who are the most likely to benefit from the treaty, in Europe and Japan as well as the United States lobbied policy makers heavily in favor of ensuring that *Intellectual Property Rights* (IPRs) would be part of the agreement. Joseph Stiglitz (2006:105) is very explicit in his judgment about whose interests were at stake in negotiating the TRIPS agreement: TRIPS «had been long sought by the United States and other advanced industrial countries in order to force other countries to recognize their patents and copyrights […] TRIPS was designed to ensure high-priced medicines.» A U.S. Consular official in China who preferred to remain anonymous is quoted in an essay in the *New York Times*: «Nothing has a higher priority in our trade policy than the fight to protect American intellectual property. For us, this is just as important a task as the fight against weapons of mass destruction.»[30]

The corporate lobby also succeeded in placing much of the oversight of the treaty in private hands. Corporations filed complaints, which were then taken up by official bodies (cf. Richards, 2004:13-16). More than one hundred countries signed the treaty. Today, most countries in the world, no matter how tiny, have patent offices. [31] The drafting and enactment of the TRIPS treaty generally manifests the influence of the nation-state as a motor of globalization.

Developing countries signed TRIPS in return for the promise of liberalizing world trade. Despite the broad assent to the TRIPS rules, the standards continue to remain controversial. Critics from peripheral states, for example, complain that the special economic and political interests of the developed world and its multinational corporations are protected rather than global health and economic prosperity.

Writing on the history of intellectual property laws, Hannes Siegrist (2019: 32; also, Machlup, 1958) noted that the «concept of intellectual property emerges from the formative periods of modern culture, science and economics. It

30 Ted Fishman, «Manufaketure,» *New York Times*, January 9, 2005, p.40.

31 See «Inventor challenges a sweeping revision in patent law,» *The New York Times,* August 26, 2012.

was developed in the eighteenth and nineteenth centuries in American and European culture-producing states with the objective of protecting the individual creative and commercial work of certain groups of the affluent and educated middle classes and protecting their special entitlements and special position during the transition from traditional aristocratic and profession-based society to modern class society.» Whether patent legislation from an analog age can still fulfill its function in the digital age is an open question.

In addition, American universities were allowed to patent research successes achieved with the help of state funding under the Bayh-Dole Act passed in 1980. However, the number of patents granted to U.S. universities had already increased before 1980, but after 1980 it rose by 300 percent (see Berman (2008).[32]

Importantly, the TRIPS agreement extends the life of a patent over what many countries stipulate; patent protection is granted for 20 years. As Maggi and Ossa (2020:5) note with respect to the contemporaneous politics of TRIPS: «A common concern is that stronger IPRs benefit developed countries at the expense of developing countries, and possibly at the expense of efficiency, by allowing firms from developed countries to charge higher prices and preventing firms from developing countries from catching up. Some observers even see TRIPS as a key reason for the current stalemate at the WTO.» The genealogy of TRIPS exemplifies the iron tenet that global rules tend to favor high-income countries and are often set in accordance with the special interests of large powerful countries. The developing countries are shut out from effectively participating in writing global rules (cf. Korinek and Stiglitz, 2021: 31-32).

The end of the Soviet Empire politically promoted this development. To participate in world trade and be present in foreign markets, each member country must create a legal framework that corresponds to the patent law in the economically dominant countries of the world. In addition, the transnational association of the largest patent offices of the United States, Europe and Japan has created a global network of knowledge governance, which leads to a «clandestine» alignment of patent law (Drahos, 2010). [33] In 1996, the *World Intellectual Property Organization* (WIPO) of the UN was established as

32 The following figures are all taken from the annual report of the *World Intellectual Property Organization* (WIPO, 2020).

33 For American universities it is in addition relevant that they were allowed to patent research successes achieved with the help of state funding under the Bayh-Dole Act passed in 1980. However, the number of patents granted to U.S. universities had already increased before 1980, but after 1980 it rose by 300 percent (see Berman (2008).

an «appendage» to the WTO. The WIPO developed a copyright agreement based on TRIPS, which further tightened copyright regulations. [34] It is difficult to overestimate the importance of TRIPS rules; Vandana Shiva's (2001:3) broad classification of the consequences of global treaties is therefore accurate: «The universalization of patents to cover all subject matter, including life forms, has resulted in patents invading our forest and farms, our kitchens, and our medical plant gardens. Patents are now granted not just for machines but for life forms and biodiversity; not just for new inventions but for the knowledge of our grandmothers.»

The sheer number of patents provides only limited information: Nevertheless, a brief word on the volume of patents granted worldwide over the past decades and the number of recent «active» patents (patents in force): [35] the number of patents granted in 2005 was approximately 700,000; in 2009, it increased to 1,400,000. In 2019, 3,224,200 patents were filed worldwide; almost half of which were from China. Asia's patent offices received 65 percent of all patent applications. In 2019, 15 million patents were «active» worldwide; the largest number was in the U.S. (3.1 million), followed by China (2.7 million). Japan (2.1 million) and South Korea (1 million). More than half of the patents active in the U.S. are from foreigners; China's comparable number in 2019 was 72.1 percent of all active patents. American citizens/companies filed the majority of all patent applications outside their home country. Patents typically have a term of twenty years. Patent holders must pay a fee to keep a patent active. Only 18.6 percent of all patents were protected for the full 20-year term.

The relevant question for me arising from the consequences of the TRIPS Agreement as well as subsequent agreements is, what are the consequences of globally effective patent law or the enclosure of the knowledge commons (Boyle, 2003), i.e., the privatization of knowledge capital, the knowledge asymmetries for the distribution of the benefits from the rights to knowledge capital? One assumption would be that massive inequality in income/wealth as well as in other benefits, such as individual and collective access to knowledge, can result from the containment of intellectual property and the (exploitation) rents such a patent regime permit. The fencing in of additional knowledge results in an increase in the wealth of those who have been assigned control of property rights. Beginning in the 1980s, a significant portion of the wealth of large corporations, which tended to be the main beneficiaries of the new

34 https://www.wipo.int/portal/en/index.html

35 The following figures are all taken from the annual report of the *World Intellectual Property Organization* (WIPO, 2020).

global patent system derives «not so much by their machines and building as by their intellectual monopolies. Patents, copyrights, and trademarks now constitute the bulk of the big corporations' assets» (Pagano, 2018).

Linked to the establishment of TRIPS is, in its wake, a significant increase in global value chain trade (GVC): For example Gereffi, 2014; Durand and Milberg, 2020). Stricter International Property Rights enable not only more GVC trade but also that the rents from the expansion would largely go to the large firms; that is, the fencing in of additional knowledge leads to an increase in the wealth of those who have been given control over property rights. This also applies to the employees of companies that benefit disproportionately from knowledge monopolies:

> Firms endowed with a greater amount of intellectual capital not only earn much greater returns on the capital that they invest but also, by investing more in the firm-specific skills of their workers, they pay higher wages. In turn, the possibility of making investments in human capital specific to private intellectual property is an important reason for the high return on invested capital (Pagano, 2018: 363).

A general theme that follows from these observations concerns the transformation of the economic system itself given its widely acknowledged and growing dependence on knowledge and the legal encoding of large swathes of additional knowledge, the motor of economic growth in knowledge societies and, of course, knowledge capitalism.

One broad-based answer to my question about the societal attributes of knowledge capitalism is made more consequential by virtue of the fact that patent protection is not merely a technical, legal or economic matter, but also that patent rights have global, social, economic and political effects, particularly, to a significant extent, on social inequality and the balance of power between companies, regions and countries. This problem of inequality can be reinforced by a more comprehensive definition of what is in principle patentable, for example business practices, designs or biotechnological products (living matters). A multiplier function is provided by the fact that additional knowledge that is then patented by private companies was originally financed by the public sector: 'Much of the research that really matters to the biotechnology industry and pharmaceutical industry goes on taxpayer expense in public universities« (Drahos und Braithwaite, 2002:15).

The more formal definition of intellectual property and property rights by the legal scholar Lawrence Lessig (1999: 134-135) in his volume *Code and other Laws of Cyberspace* is instructive:

> Intellectual property rights are a monopoly that the state gives to producers of intellectual property in exchange for their production of it. After a limited time, the product of their work becomes the public's to use as it wants. This is Communism at the core of our Constitution's protection of intellectual property. This «property» is not property in the ordinary sense of that term. […] Taken together, these rules give the creator significant—but not perfect— control over the use of what he produces. They give the public some access, but not complete access. They are balanced differently from the balance the law strikes for ordinary property—by design. They are constitutionally structured to help build an intellectual and cultural commons.

The protection of intellectual property in the sense of intellectual property law (copyright and related rights; *Intellectual Property Rights* (IPR) should, if this is indeed the case, create incentives for innovation (Stiglitz and Greenwald, 2014: 429-456). The counterpart to copyright-protected intellectual property is the public domain, intellectual property as common property or, as I call it, it is part of the global commons of knowledge. However, there is justified suspicion or even fear that companies have an interest in promoting exactly the opposite (Stiglitz, 2002:245), namely the increased monopolization of knowledge advances. This suspicion is reinforced by the fact that additional knowledge is the most important resource for future inventions and profits in knowledge capitalism.

Belloc and Pagano (2012: 473), for example, refer to so-called «patent pools» (collectively supported by several companies) and anticipatory patenting, which only large companies can afford to do to avoid being hindered in their business practices (specialization restrictions) by lawsuits from other companies. More recently, «11 firms, including Sun Microsystems, Motorola, Hewlett-Packard, Verizon Communications, Cisco Systems, Google and Ericsson, […] become members of AST (*Allied Security Trust*), a joint trust which is a patent holding company that helps protect members against patent infringement lawsuits.» Patent cartels take over the function of traditional cartels that are strongly opposed by law in many countries. In both cases, with respect to the protection of their own patents and the application of new, patented knowledge, small companies rarely have a chance.

In short, attention to patents should play a central role in the analysis of modern societies as knowledge societies turn into knowledge-based monopolies; and within as well as across knowledge societies, patents should play a crucial role in the analysis of the knowledge-based economy, social inequa-

lity, geopolitics, innovation, the motive structure of knowledge societies and the politics of knowledge societies. One of the foremost moral and political dilemmas that knowledge capitalism faces is that patents as expressions of capacities to act may far too rigorously encode knowledge and, as a result, fail to consider the rights of societies and individuals who have a profound need to use the encoded knowledge; the context of a pandemic would furnish a prime example but so would be the threat of environmental damage and withholding knowledge and technological inventions that may prove essential for adaptive measures. On the other hand, the actual financial benefits that accrued to either the organization or the individuals for inventions that transformed our lives, for example, in the case of the inventions that led to computing, the green revolution, television or antibiotics were small. The principal motives of the inventors were not, so it seems, financial in nature (cf. Kay, 2003: 258). Many of the most consequential discoveries were initiated, supported and developed by government agencies and public funding. It follows that the question is not new but appears to be on solid ground: Is it time to fix patent law? However, first, a brief reference to a blind spot and the reasons for the blind spot in the usual narrative of the power of knowledge and thus the power of patents can be in a kind of magic triangle: power, knowledge, and patents (laws).

The current development of artificial intelligence is another stage in the development of knowledge capitalism and its monopolistic tendencies. AI technologies are being used to design new materials, and optimize manufacturing processes, drug discovery, and other processes such as human resource decisions. Patents are granted not only for human-induced inventions but also for novel technical solutions. In October 2023, the World Intellectual Property Organization (WIPO) reported a significant increase in AI-related patent applications worldwide. According to WIPO's 2019 report, more than 340,000 AI-related patent applications were filed worldwide. Over half of these patents were published between 2013 and 2018. Companies account for 26 of the top 30 AI-related patent filers. As Anke Moerland (2024: 362) noted, «the proliferation and continuously increasing sophistication of AI technologies requires us to rethink fundamental, human-centric concepts of IP law.» For example, how does intellectual property law ensure that basic AI technologies are available to others at a reasonable price?»

AI-driven development is also represented by the infrastructural power, owned, and controlled by large technology companies, that emanates from cloud platforms. Cloud platforms are online services that provide computing resources such as storage, processing power, and networking over the Inter-

net. These platforms enable users to develop, deploy, and manage applications and services without the need for physical hardware or traditional data centers.

Conclusions

The modern economic order, particularly in the context of the knowledge economy, has undergone significant transformations over the past decades. The evolution from industrial capitalism to knowledge capitalism reflects a shift in the primary sources of economic value, from physical capital and labor to knowledge and intangible assets.

One of the key insights from my analysis is the increasing importance of intellectual property rights (IPRs) in shaping the modern economy. Patents, copyrights, and trademarks have become critical tools for corporations to maintain competitive advantages, generate monopoly profits, and control access to knowledge. The rise of knowledge capitalism has led to a concentration of economic power in the hands of a few large corporations, particularly in the technology sector, which dominate through their control of digital ecosystems, data, and proprietary algorithms. This concentration of power has significant implications for social inequality, as the benefits of knowledge capitalism are disproportionately accrued by those who own the means of knowledge production.

My paper also highlighted the role of the state in facilitating and regulating knowledge capitalism. While the state has historically played a role in protecting intellectual property, its involvement has become more pronounced in the era of knowledge capitalism. Governments are increasingly tasked with balancing the need to incentivize innovation through IPRs while also addressing the negative consequences of monopolistic practices, such as reduced competition, higher prices, and limited access to knowledge. The tension between these objectives is particularly evident in the global context, where international agreements such as the TRIPS (Trade-Related Aspects of Intellectual Property Rights) have created a framework for the global enforcement of intellectual property rights, often favoring developed countries and large multinational corporations.

Furthermore, the paper underscored the transformative impact of artificial intelligence (AI) and cloud computing on knowledge capitalism. The infrastructure power of large tech firms such as Amazon, Google, and Microsoft, which control the majority of the global cloud computing market, has created new barriers to entry for smaller firms and start-ups. The monopolistic tendencies of these corporations are reinforced by their ability to leverage vast

amounts of data, financial resources, and proprietary technologies, making it increasingly difficult for new players to compete. This concentration of power in the hands of a few tech giants raises important questions about the future of innovation, competition, and economic inequality.

In conclusion, the modern knowledge economy represents a significant departure from traditional forms of capitalism; however, this shift has also led to new challenges, including the concentration of economic power, the erosion of competition, and the exacerbation of social inequality. As we move forward, it will be crucial for policymakers, businesses, and society at large to address these challenges and ensure that the benefits of the knowledge economy are more equitably distributed. This may require rethinking the role of intellectual property rights, fostering greater competition in the technology sector, and developing new regulatory frameworks to balance the interests of innovation, access to knowledge, and social welfare.

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