

Transnational Corporations and Fordism in the Digital Era: A Theoretical Explanation and Prediction



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In the 1920s, innovation, especially assembly line production, gave rise to a new type of corporations and industries and a new form of capitalism that ushered in the age of mass production and mass consumption: Fordism. The production of the automobile for the masses is emblematic of this development. Digitalisation is once again bringing about a radical change in capitalism and the Fordist production structure. As a result of digitalisation, not only has an entire new industry already emerged with innovative companies such as Apple and Google, but the production of classic Fordist industries such as the automotive sector is also undergoing fundamental change. The Internet of Things, Big Data and artificial intelligence are revolutionising production processes and business models. The more efficient work and production processes generate productivity and welfare gains and promising growth opportunities for the future. However, the flip side of this development is accompanied by an increasingly unequal distribution of these gains. Despite the productivity gains, social inequality is rising in many industrialised countries and increasing the pressure on the welfare and social state due to increasing debt. At the same time, humankind is facing tough challenges like climate change, overpopulation and many more. Some might even see uprising military conflict on a large scale. Some of these challenges might be seen as results of the unequal distribution. But all of them can be easier if even overcome if humankind is able to use the gains digitalisation is bringing. Therefore we'll try to give a few insides in this paper about why the economic cake is getting bigger, and why the pieces at the same time are more unequal divided.

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Our journey begins with the changing nature of the firm. Asking the question of how does digitalisation affect the internal structure of corporations first? To answer the question, how do such changes transform the global capitalist economy in general in the end? This paper provides a theoretical explanation and prediction into how this unfinished digitalisation affects capitalism and what can be expected from this development for the future. The starting point of our consideration is the technological change in the digital revolution's course on dominant companies' structure at a micro level, which we discuss in the first part of this essay. In the second part, we will build on this and examine the consequences of this fourth industrial revolution for the economic and social macro level. In particular, we will look at what this revolution means for the structure of income distribution and ultimately for the traditional Fordist production system.

1 The Genesis of Transnational Companies: The Micro Level

In introductory economics textbooks, we learn quite early on what enterprises are. They are the places where production factors, such as capital and labour, are combined to produce goods and services. This process is also expressed in cost functions and essentially determines the market forms these enterprises meet: monopolies, oligopolies or polypolies. Even if we rarely find the perfect market with homogeneous products, no preferences of consumers besides the price and the presence of a large number of relatively small buyers and sellers, who can't influence the price; we still refer in particular to the natural monopoly as a form of market failure. This form of monopoly is natural because it arises directly from the cost function. It is characterised by permanently falling average production costs due to high initial investments and no or only low marginal costs. This structure ensures that one firm is more efficient in producing the entire market quantity than two or more firms. It excludes competition and gives the power to set prices freely to only one company. Therefore, it is a market failure. Typical examples are companies that own networks, for example, in telecommunication or rail industry, which is why they are often regulated.

We support the thesis that in course of the digital revolution, in addition to this classic natural monopoly, a new form of natural monopoly is increasingly emerging, which we call abstract natural monopoly. They are abstract because they are not based on a single asset, such as a railway network, but on many complementary assets that enable permanently falling marginal costs across many different business processes and markets. The consequence of this is that this structure is not as discriminatory against other market participants as the classic natural monopoly. What emerges is an efficiency advantage based on economies of scale at the company level that encompasses large parts of the company. These assets can be typical headquarter services but also particular but scalable technical advantages. For instance, if you

have a perfect transnational tax avoidance strategy or large amounts of investment capital or many loyal clients and their data, you can gain efficiency for many different company activities and on a lot of different markets. Or you could have specific algorithms or a robotic manufacturing advantage, allowing you to make all your manufacturing or sales strategies more efficient, independent of if it's clothing or machinery. Therefore these tendencies affect all industries, from manufacturing to banking. How big this effect is, depends on how relevant scale effects are in an economy. One could think of many examples like small corner bars or different personal services that might seem to be not very much affected by scale effects. But if you look at Starbucks or McDonalds as examples, it seems those industries could be at least potentially much more efficient by using scale effects. Spending a lot for the perfect all-over business model and then scaling it up, is for many of those industries a way that has recently opened now due to the low transaction costs caused by the digital revolution.

Accordingly, comparably efficient companies can also coexist since we are talking about markets with differentiated products anyway. Therefore, this structure is not as exclusively discriminating to other companies as a classical natural monopoly is. However, it also follows that companies with a too-small size or without scalable assets often no longer participate in the market. Simultaneously, the specific markets are not mandatory boundaries for those companies forming an abstract natural monopoly. Because many scalable assets, especially those on the headquarter level, could gain efficiency benefits on many different markets. The consequence would therefore be fewer, more extensive and in many cases, more differentiated companies. Almost without exception, these would also be transnational companies, since the necessary economies of scale can typically only be realised across several countries. China's big market might be a relevant exception here.

As these companies always combine every new asset with existing assets, innovations for them often have a higher value than for the innovator. Alphabet (the company behind Google), for example, buys start-ups for immense prices, and it is not alone in this. Some of these are companies with little more than a developed idea and far from operating profits. If you look at the individual deals, you often ask yourself: for whom can this be worth so much? But the answer is simple: for Alphabet. When Alphabet buys an idea or a company, it combines it with all its other assets—vast amounts of data, customers, market access, tax structuring models and much more. These multipliers make acquisitions extremely profitable, even at high prices. The entrepreneurs who gratefully accept the money fetch a price above what their idea would ever have been worth to them since they do not have Alphabet's other assets. Therefore, Schumpeterian creative destruction is collected in a digital world before it becomes hazardous for the top dogs (Lorberg & Janusch, 2020). The system is thus not fundamentally hostile to innovation. However, innovations are primarily incorporated and do not lead to new unconnected companies.

While this is especially true of digital companies, it is not intended to give a false impression that a company must distribute digital services to generate an abstract natural monopoly. The increasing emergence of abstract natural monopolies is a consequence of the digital revolution in a general sense. We will now explain in

more detail with the help of International Business Theory. This theory is a strand of business theory that deals primarily with the formation of multi- or transnational companies. The main protagonists are the Marxist Steven Hymer (1960), John H. Dunning (1988) with his eclectic paradigm and Buckley and Casson () with their Internalisation Theory.

In 1972, Steven Hymer made his mark with two striking theses on the economy of the year 2000. The first is the “law of increasing firm size” which describes genesis of the transnational company. He assumes growth of company sizes as a historical law and foresees this process’s acceleration until it stabilises in global oligopolies. This system would cause wealth as well as poverty and thus leads to unequal development, also geographically. This development forms the second law, “the law of uneven development” (Hymer, 1972). Hymer therefore already offered a comparable thesis to the one presented here in the early 1970s. For him, the development of company size represents a regularity that can be observed historically: “Since the beginning of the Industrial Revolution there has been a tendency for the representative firm to increase in size from the workshop to the factory to the national corporation to the multidivisional corporation and now to the multinational corporation. This growth has been qualitative as well as quantitative. With each step, the business enterprise acquired a more complex administrative structure to coordinate its activities and a larger brain to plan for its survival and growth” (Hymer, 1982: 128). Thus, he argues that the enterprises are developing in their internal organisation and, under conditions of competition, are forming a structure that differs from that of the entrepreneurial firm, as Alfred Marshall described it as the formerly typical model.

“The new corporate form has great flexibility. Because of its decentralised structure, a multidivisional corporation can enter a new market by adding a new division, while leaving the old divisions undisturbed. (And to a lesser extent it can leave the market by dropping a division without disturbing the rest of its structure). It can also create competing product-lines in the same industry, thus increasing its market share while maintaining the illusion of competition. Most important of all, because it has a cortex specialising in strategy, it can plan on a much wider scale than before and allocate capital with more precision” (Hymer, 1982: 135). He also recognised that the order of economic activity was and is determined by two competing mechanisms: “The hallmarks of the new system were the market and the factory, representing the two different methods of coordinating the division of labour. In the factory, entrepreneurs consciously plan and organise cooperation, and the relationships are hierarchical and authoritarian; in the market, coordination is achieved through a decentralised, unconscious, competitive process” (Hymer, 1982: 131).

Hymer explained his “law of increasing firm size” primarily through organisational development and capital accumulation that develops over time. Ultimately, this also means that the firm’s coordination mechanism, or we could also say hierarchy, partially replaces the market over time. Even if he does not delve further into this relationship, we find the annexes of the idea that Coase (1937) put forward in “The Nature of the Firm”: the use of markets (competition) as a coordination mechanism causes costs. It should be added to this: The use of the firm (hierarchy) as a coordination mechanism also causes costs. In both cases, those are the costs

incurred in undertaking an economic exchange. We call them transaction costs. The market causes those costs to occur as costs for the search for sellers or buyers and the right products, the right price, bargaining, deciding and enforcement. Companies produce those costs as costs of management. That means through handling all the information flows internally and externally for meaningful and effective planning, organising, commanding, coordinating and controlling.

This is the focus of Buckley and Casson's internalisation theory. They give us an additional perspective on the enterprise beyond that as a place of factor combination: "The result was a view of the firm as a complex of interdependent activities, linked by flows of knowledge and intermediate products" (Buckley & Casson, 2009: 3). Rational actors will consider the costs and benefits of using both modes of coordination. And therefore "(...) will internalise markets when the expected benefits exceed the expected costs" (Buckley & Casson, 2009: 5). As a result, the relative efficiency of coordination mechanisms defines the size of firms in each capitalist era: "It was the economics of coordinating this internal division of labour, and not technology, that set the limits to the boundaries of the firm. While technology might set a limit on the size of any one plant, it was diminishing returns to managerial coordination that set the limit to the size of the firm. These limits were reflected not only in the aggregate quantity of output produced by the firm, but also in the range of locations in which this output was produced and sold" (Buckley & Casson, 2009: 3). In conclusion, we find that markets' and companies' relative capacity defined by the available technology determines companies' size and the market form of a capitalistic era.

After these introductory thoughts on international business theory, we return to the core of this paper: the transformation of dominant companies' mode in the course of the digital revolution. If we follow Hymer's perspective, there is nothing new, as he foresees businesses' continued growth at the micro level with corresponding consequences for the macro level anyway. Without contradicting this, however, we see a qualitative leap in this development through the digital revolution. With recourse to the internalisation theory, the central question is whether the digital revolution enables companies to be more efficient coordination mechanisms. We assume that it is fundamentally advantageous for companies to be larger since the diversity of accumulated assets and their use across the largest possible number of value-creation processes provides them with superior efficiency based on falling average costs at the firm level.

Hymer was not the only one to deal with these assets as a starting point for transnationalisation. Also, Dunning used those, particularly in his Eclectic Paradigm. He describes the initial transnationalisation of companies, along with three aspects: Ownership Advantages (OAs), Locational Advantages (LAs) and Internalisation Advantages (IAs) (Dunning, 1988). A company must at first have OAs, which is synonymous with what we call assets. It means that a company has an exclusive advantage that, for instance, potentially enables it to generate additional sales, if enlarging its activities to other places. If they find a location enabling to use these OAs for the benefit of the company, that location includes advantages (LAs). In this example it could be a large market with a low level of competition. If these two aspects come together the company starts to act cross-border. Finally, the question

arises as to whether this cross-border activity should take place on the market or within the company itself, i.e. through internalisation, whereby Dunning basically takes up Buckley and Casson. Such IAs in this example could be the internalisation of the sales structure, if it promises a higher revenue than getting a sales partner on board. In this way, he explains the cascade that leads to the initial transnationalisation of companies. However, he recognises that it is a cyclical process after that initial phase. The market access or the tax advantage or the patent acquired in transnationalisation becomes an asset itself and creates further advantages. It is the core for an ever further increase in a company's efficiency and expansion of the company itself, as Dunning himself describes in later writings (cf. Dunning, 2001: 175 ff.).

However, these efficiency gains are negated with increasing size by increasing coordination costs, as Buckley and Casson have already described. Here we find the limit of company's size depending on the underlying technology of information processing, storage and transmission. If a company overstretches itself, it may no longer be able to use its potentials and adapt efficiently to changes. In Schumpeterian creative destruction processes, even giants can then have to make way for small innovative companies. However, the question arises as to whether this logic still holds. The digital revolution is an unprecedented exponential development of information processing, storage and transmission, as one of the authors has already explained elsewhere (Lorberg, 2018: 169 ff.). The type and amount of data that can currently be handled ultimately make any historical comparison nonsensical. This leads to a new efficiency of management through digital systems and applications lowering internal transaction costs extremely. Barely a decade after the widespread availability of smartphones and mobile internet, even many of humanity's poorest parts can hardly imagine life without these technologies. Data is the new gold, and the unforeseeable development of artificial intelligence and the Internet of Things does not lead us to assume that we will encounter relevant limits in dealing with this data (for more details, see Lorberg, 2018, esp. Part IV).

2 Consequences for the Global Economy: The Macro Level

With the justification of the far-reaching negation of the limitation of company size and the enforcement of economies of scale in the digital revolution, the question further arises as to how this translates to the macro level. This is what we want to look at in the rest of this paper. After a historical context and a few words on capitalist societies' stability conditions, we ask how stable the new economic structure can ultimately be. We deliberately want to answer these questions in the form of theses to give the reader room for reflection.

Seeing the succession of history, especially economic history, in terms of ever-changing upheavals and renewed stabilisation is quite a common theme. Alongside minor cyclical ups and downs, which keep the basic structure untouched, it's the major disruptions changing the game rules and making utterly new thinking necessary. To renew stabilisation after those disruptions, new theories and social patterns can

prove essential. In the case of the digital revolution, the authors assume it to be such a major disruption. Schumpeter (1939) in particular associated these developments primarily with technological change. It was less about the pure discovery of a so-called basic innovation, but rather about it becoming established in production and other value creation and becoming the new paradigm. We also find the themes in Marx's philosophy of history as the history of class struggles (Marx & Engels, 1848). The formation of classes takes place in the context of ever certain material conditions. In particular, the capitalist society was born with the technological development of the first industrial revolution that divided the society into those who had capital and those who could only carry their labour-power to the market.

Gramsci (2012) and, in his succession, Cox (1981, 1983) then thought more deeply about how such a system of exploitation could be stable and how it could become entrenched in and stabilised by ideology, culture and institutions. We take these thoughts as the basis for our analysis. For Gramsci, capitalism always remains a system of exploitation that serves the ruling class more than the ruled class. But the secret of its stability is precisely that it also benefits the latter. Therefore, capitalism in its stable phase lives on a promise. The promise that those at the top may profit more than those at the bottom, but the bottom benefits, too. This also implies a central ideological and often factual difference between capitalism and, for example, feudalism. In feudalism, it was accepted and probable that a peasant would be the father of a peasant. Social mobility or economic progress were no central themes of the time. However, capitalism, especially post-war capitalism, holds the promise of advancement, the much-vaunted American dream. The promise that the father will do better than his father and his son will do even better. Capitalism thus receives its legitimacy in the long term as output legitimacy; from the fulfilment of prosperity promise also for those less well-off. If the fulfilment of this promise is called into question, social stability will be disrupted. A common truth, stable institutions and ultimately, peace are at stake. At this point, we are leaving what Antonio Gramsci and Robert Cox call (world) hegemony. Hegemony is an order within the (world) economy characterised by a dominant mode of production expressed in universal norms accepted by the ruling and ruled classes and stabilised by (international) institutions.

There is a possibility that this promise can be renewed. With some adjustments, the system can return to output legitimacy. But there is also the possibility of formulating a fundamentally new promise; of creating a new hegemony. At the same time, however, there is also the possibility of remaining in unstable conditions for a longer period of time and of disintegrating globally into blocs that are more or less in conflict with each other. With these scenarios in mind, we will end by looking for answers to where the digital revolution will lead us.

Historically, we can date the beginning of the first Industrial Revolution to around 1780 and can locate its start in England. From there it needed 50–70 years to establish a new dominant mode of production and significant social upheavals all over Europe and even further. It is no wonder that the Communist Manifesto and revolutions, such as the French and less successful German, fall into this period and that the rise of the British Empire entered a new phase. With electrification from around 1870,

the Second Industrial Revolution slowly brought about the new style of reasonably stable capitalism over the next 50–70 years, accompanied by wartime turmoil. This new style and mode of production is usually known as Fordism and Taylorism. Rationalisation of mass production, real wage increases and, on a broad basis, the possibility for the first time that workers themselves could afford the products they produced (mass consumption) were its characteristics. In this system, the United States replaced the British Empire as the world hegemon after the Second World War at the latest. Since the beginning of the Third Industrial Revolution in the 1970s, however, the stability of the Fordist capitalist system has begun to falter. Since then, there has been talking of the American Decline (cf. Müller-Jentsch, 2017: 80). After the short end of history in 1989/90, the question now arises about whether we may enter or have already entered an Asian or Chinese age. But even more, the stability of the world economy stands in question once more. The central question is not just if China will substitute the United States as the biggest economy and military power in the long-run, but if the mode of production and capitalist system fundamentally change in course of the digitalisation.

In order to describe the effects of the fourth industrial revolution, we take the described development towards large transnational companies with the possibility of distributing their processes all over the world in an efficiency-optimising manner as a starting point. We'll show that this results in an increased need for regulation as well as an increased regulatory problem. The increased need for regulation results from a more unbalanced distribution of primary income, which significantly affects developed countries. With an international choice for the best location in each step of a company's activity, factor-income is paid increasingly efficiently for smaller and smaller parts of those activities. Besides, income that is too high by international standards is increasingly being squeezed out or replaced by technical solutions. To understand the more efficient transnational use of production factors, it is necessary to look at the new type of company's geographical structure.

Let us take the stereotype of a classical company in the sense of Alfred Marshall as a starting example (cf. Hymer, 1982: 130). This enterprise creates value in one place. It may procure raw materials or intermediate products from abroad, but these are procured from unrelated companies and at a low-value level. Basically, all its processes take place in the place where the company is based. This means that it has both the processes that can be carried out particularly efficiently at this location and all others carried out there. For all the processes that are not efficient, the local wage is still paid. This leaves a social waste heat based on the payment of inefficient wages. Social waste heat, therefore, is an effect of inefficiency. It is based on high internal transaction costs, making it ineffective for companies to combine the globally ideal production factors to the lowest production costs. Before digitalisation, a worldwide production network in the modern sense was a true exception. Even if such companies became active across national borders, it was mostly sales or procurement, i.e. the parts with which the company core connects to other market levels. Another possibility was to rebuild an entire factory with all the value-added stages at another location. So, a company had more or less the same factory at different locations in

different countries. In the end, however, this did not change the deep structure of location-based value creation.

However, the social waste heat of place-based production resulted from the time's technical conditions, the friction in the economic system itself (Williamson, 1990). We are talking here about transaction costs. Due to the comparatively underdeveloped possibilities of processing, storing, and transmitting information before the digital revolution, companies could not efficiently realise a less space-bound structure. Therefore, it was also the efficient structure of a pre-digital era. However, it is no longer since digitalisation took over. With significantly lower transaction costs in the course of the digital revolution, the processes can be carried out at the most suitable locations globally from a production point of view, as transaction costs are substantially less important. Thus, companies become complex global value-creation networks, and only that part of the overall process is carried out at a most efficient location there.

Interestingly, since many dominant companies in many sectors act in that way, location does not become less but more important due to decreasing transactions costs as a result of digitalisation. Locations specialise more and more in specific steps of production and value-creation due to agglomeration effects. At the same time, they become more and more unequal. For example, Porter's (2010) concept of clusters has become well known in this context, as have scaling considerations such as those made by Krugman (1979, 1980, 1991) in the New Economic Geography or the New Foreign Trade Theory. Where the conditions for specific processes were good, they become better and better. As more companies place their specific part of value creation to one specified place, it is easier for specified workers to find high-paid jobs at this place. That makes it attractive for other companies to settle there too if they search for those employees. As we see, specialised labour markets include scale effects. And the same uprising spiral can be found in infrastructure, knowledge externalities, specified suppliers and consultants and so on. With sinking transaction costs and a general restructuring of value creation, factor price equalisation also intensifies in the sense of the Lerner-Samuelson theorem (Samuelson, 1948). We find Hymer's "law of uneven development" approved by the intensified global competition, due to shrinking transaction costs. At the same time, scale effects on the company and location level boost this development.

The consequence of all this is fundamentally higher efficiency of production, a concentration of considerable added value in certain specialised regions central to global production. This leads to a reduction of poverty in those areas in the Third World who gained a role in this system, above all some regions in China. But at the same time, we see also a dwindling real income in the lower deciles of the income groups in the developed countries, while top incomes and company values are reaching new, sometimes seemingly surreal highs.

Now, the problem with this is primarily from two perspectives. First, the promise related to a capitalism of lasting prosperity for all is no longer being fulfilled. Second, the new structure of companies makes the increasingly necessary regulation much more difficult. As a result, the western liberal model of success increasingly lacks output legitimacy, which is reflected domestically in growing insecurity and lack of

direction. In many cases, it favours a turn to nationalist and illiberal politics. In terms of foreign policy, China is now more likely to advertise the promise of prosperity for all and seems to be gradually establishing a new world order, as evidenced by the Belt and Road Initiative or the Regional Comprehensive Economic Partnership. Simultaneously, the West has failed to establish rules of the game for world trade above all the United States and the European Union. The negotiation breakdowns over the Trans-Pacific Partnership and Transatlantic Trade and Investment Partnership are symbolic for the West's failure to renew the upcoming capitalist system's rules in the digital era.

Thus, we are witnessing a period of weakness, at least among the developed countries, to cooperate, which can be seen in the past Trump administration and Brexit or the openly illiberal democracies in Poland and Hungary. However, a common capacity to act is of considerable importance for the stability of the global economy in the digital age. The Fordist conditions of our social and economic stability are still reasonably based on mass production and mass consumption. However, mass consumption must be covered by mass income to be stable in the long run. For quite some time now, we have been experiencing an ever-increasing level of public and private debt, which increasingly supplements income-based demand and shows no global tendency to be reduced again. Thus, the Fordist capitalist system based on mass consumption is kept alive by private and public debt because it misses the required income distribution. The digital revolution, therefore, destroys the conditions of its foundation, the Fordist mass consumption. It is just kept alive by debts. However, debt-based demand leads to bubbles that can challenge the very foundations of the global economy.

The digital economy thus decouples factor income and demand for goods not only spatially, but also factually. That means the income is not distributed to those who can and would do mass consumption. For instance, if the top 1% are getting more income, they will not buy 10,000,000 more small cars. But the dwindling middle class would do, but they only can do this through debt. Also, the rising demand coming from China and maybe other Asian countries will not bridge this gap. It is not the mass consumption needed, as the income distribution is worse than in the West and the income level of the middle class is still low. Besides this, the rising demand from China and other emerging markets is fuelled by more efficient use of production factors, as we argued in this essay. That means that the global middle-class income is shrinking relatively to the global GDP and the global low- and high-income deciles. Which is made visible in the famous elephant curve (World Inequality Lab, 2018). According to its Fordist logic, demand-effective factor incomes would have to be generated through redistribution across the board to stabilise the system. The transnational production structures and the corporations behind them could surely be regulated and included in such a redistribution by a world state. However, this is a utopia for the indefinite future. What is certain, however, is that competing nation-states will not be able to do this. Especially not when competition seems to outweigh cooperation.

In conclusion, digitalisation is taking us far away from stability conditions of Fordism and ultimately requires a form of regulation that goes beyond the nation-state, which was the form of state suitable for Fordism. A restoration of Fordist hegemony does not seem to be in sight, as the forces driving us away from economic stability are at the same time driving us away from national and global trust and cooperation. The friction between the nation-state and the global economy seems to be an unsolvable problem at the moment.

If a possible new Chinese hegemony is beginning to emerge, will it be able to restore a stable global economy? That's not very probable. China faces emerging economic problems due to a lower GDP growth rate and the upcoming demographic and maybe social issues. And under which circumstances would the West accept a world under Chinese hegemony, as it would have to question its own foundations like democracy and individual rights? Even more likely a world of two or three dominant blocks could emerge as the consequents of a rising China. Like in the cold war a double hegemony or in other words, a bipolar system could form. At least most scholars of neorealism hold that one for the most stable. Suppose the hegemony in those blocks would be strong enough. In that case, this system could have the spatial fit and the negotiating power towards transnational companies to make the world after digitalisation a world of welfare for many. Because we should not forget among all uprising problems, the digital economy makes humankind richer and more capable of acting than ever. Therefore, digitalisation can be the cure for such issues as the climate crisis, poverty and many more. But it also can be the cancer opening up an extended phase of conflict, crisis and unused chances. The only certain fact is that the world has not yet found a form of regulation for the digital era.

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