

TRANSPORT AND LOGISTICS IN THE FACE OF GLOBAL TRANSFORMATION

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Abstract:

Although in some cases, the very term ‘globalisation’ may refer / date 800 years back to the time of Silk-Road, ‘globalisation’ is a rather contemporary phenomenon in its present conception. In this sense, it refers to “the growing interdependence of countries resulting from the increasing integration of trade, finance, people and ideas in one global marketplace”.

On the broadest level, the term globalisation refers to the growing global-scale interconnection and integration of human activity. It is not implausible to say that “there are lots of ‘big issues’ that are somehow interconnected under the broad umbrella term ‘globalization’. In the words of one contemporary commentator

“We live in an era in which everything has changed, and most things are still changing. The ice has melted on the familiar landscape of the second half of the 20th century. Power in all its forms is shifting rapidly and unpredictably. You might even say that we at the beginning of history” (Stephens, 2005).

Such feelings of uncertainty are intensified by an increased awareness that what is happening in one part of the world is deeply –and often very immediately – affected by events happening in other parts of the world. Part of this is simply the result of the revolution in electronic communications that has transformed the speed with which information spreads.”

In this bitter process of global structural transformation, the basic feature was (and still is) the element of connectivity. In Parag Khanna’s words, “Connectivity is the most revolutionary force of the twenty-first century. Mankind is reengineering the planet, investing up to ten trillion dollars per year in transportation, energy, and communications infrastructure linking the world’s burgeoning megacities together. This has profound consequences for geopolitics, economics, demographics, the environment, and social identity. Connectivity, not geography, is our destiny.”

However, as the world economy has already been set to pass through a Revolutionary process of global economic transformation, a recent event broke out in the form of a severe viral epidemic, the COVID-19 Pandemic, and in the spread of virus, the efficiency of the connectivity played the primary role. In this process of development, connectivity as sine qua non of the contemporary global economy can be assumed to be the leading factor in the working factor for the running of not only the economy but in other spheres of social life., Out of this supposedly interim period, the whole world appears to be engaged to project an ‘expected’ new world in the form of a “new normal” / “next normal” as it appears that future will be utterly different from what it used to be at the present in terms of many, if not all, areas such as consumer behaviour, market and sector attractiveness and many others.

In this study, after making a brief analysis of global trade-global supply and value chains (GSCs and GVCs respectively), and their spillover in both goods and passenger transport

networks at international and urban levels, we will first try to seek development potentials of transport and logistics networks with reference to the future development potentials.

What we know today is that nothing is accurately definable for the near future apart from trying to speculate about the potential development patterns of transport networks vis-à-vis the expectations of transformation of the goods and services sectors, considering the disruption both pre- and post- disruption within the context of production and viral spaces.

Keywords: Supply chains - Value Chains – Transport – Trade – Connectivity - Global

JEL Codes: R4, O18

Introduction

“We live in an era in which everything has changed and most things are still changing. The ice has melted on the familiar landscape of the second half of the 20th century. Power in all its forms is shifting rapidly and unpredictably. You might even say that we at the beginning of history”¹

With a reference to these words of Philip Stevens², Peter Dicken, in his colossal work (625 pages), **Global Shift** (cf. References), has written that *“The current explosion of interest in globalization reflects a pervasive feeling that something fundamental is happening in the world; that there are lot of ‘big issues’ that are somehow interconnected under the broad umbrella term ‘globalization’.*

The time of the publication of Dicken’s book was, however, 10 years before our time; it was 3 years after the collapse of Lehman Brothers and the beginning of global financial crisis and the following period of uncertainty. There was no sign of Corona crisis in the offing yet or beginning of a sign of realisation of the awesome magnitude of the environment / climate change mayhem. And now, in the opinion of the author of this paper, these are all the signs of a coming big shift in the world at an unprecedented scale or even to say that the shift is already under way.

Dicken’s work has been in a linear context no matter he has been analysing the change with a nonlinear approach: he has been involved in an analysis of the global economy and no further to embrace the contours of a multifaceted picture – the big picture. In other words, the big picture contains more than the economic outlook or that of very concept, globalisation as such.

The history of world is full of a massive list of metamorphic events and processes. Some of these happened to be severe and with long-lasting consequences. No matter while these are not our main (declared) points of interest here, we cannot ignore them when we intend to analyse sectors like transport and logistics networks, they are to be destined to penetrate into the field to occupy the study area in heavy portions. Because, otherwise, it becomes a futile effort to analyse these two sectors, intertwined with each other, especially when we treat them at a macroeconomic level, especially in our case.

¹ P. Stephens (2005). *Why nostalgia is futile at the beginning of history*. Financial Times. 27 May 26

² Assoc. Editor of Financial Times.

Literature Review

The literature on transport and logistics is very rich. However, as this paper is being written in an exceptionally chaotic interim period as the quotation reads above, the validity of most of those works need some sort of scrutiny. Then under the shadow of such a situation looming large over the whole world, we can divide the state of literature into two phases: Before and after the Corona Crisis. However, in the opinion of the author, the conditions which are shaping and will be shaping of a new world in the near future have already being moulded by late 20th century.

In an attempt to characterise the change, we can refer to the developmental process of the world economy throughout the centuries. The most notable spots in the timeline of this progress have been marked by revolutionary aspects. The most striking of them with long-lasting effects is called 'Industrial Revolution' - of 1820s³. The beginning of studies on transport *per se* can be attributed to this event. "Historically transport issues and problems have always drawn attention of a big number of people from among the field of engineering, economics and management. Due to this, a variety of transport issues and problems discussed between the last quarter of 19. Century and the first quarter of 20. Century have kept their effectiveness in our time. A typical feature of the early transport literature of this period has been the development of a number of economic concepts earlier than they have been included into the analysis of transport problems and the mainstream economics writings.

Then we observe an almost virtual lull without a notable publication till 1959 when Meyer *et al* have brought out their celebrated work⁴ which is considered a classic in the literature of transport studies. From then on, we can see a slow but steady upturn in the momentum of transport economics literature. However, we can maintain that the *economic analysis of transportation* has never been the primary concern of the leading pens of mainstream economics.

As a result, it must not be regarded spurious to say that the scholarly analysis of transport problems is being put into the transport literature with the efforts of transport economists of the last 25 years. It is interesting to note what K. Button, one of the most prominent of this brand of economists, has written in the 3rd edition of his book, *Transport Economics* (2010): "Over a quarter of a century ago I opened the first edition of *Transport Economics* with a quote from an address to the UK's Chartered Institute of Transport by K.J.W. Alexander⁵ which made the rather sober point that despite the importance of transport in the economy, 'the number of academic economists who specialize exclusively in transport could probably be counted on two hands'."⁶

The clear remark here is the indifference of economists to basic issues of transport for a long time. Nevertheless, during the decades when there appears a growing interest in the economic analysis of transport issues, a parallel process was in progress. In parallel with globalisation process of the economy an analytical approach of studying the mode of production in terms of global supply and then value chains has dominated the field. Then the literature began to follow the same lines. Richard Baldwin and Peter Dicken are among the researchers to

³ We attributed the title with a date simply because many people call it 1st Industrial Revolution – cf Klaus Schwabb of WEF

⁴ J. Meyer *et al* (1959), **Economics of Competition in the Transportation Industries**. Cambridge, MA: Harvard U. Press

⁵ K.J.W. Alexander, "Some economic problems of the transport industry", *Chartered Institute of Transport Journal*, **36**, 306-8, 1975.

⁶ The part put into the parenthesis are quoted from a study of the author with another – Dr. Çelebi.

evaluate the historical changes with special attention to global supply and value chains. The names of Gary Gereffi, Marcel Timmer, Bart Los, L. Tavasszy can be named a few of the many.

1. World Economy in Transition

The very title above can be interpreted in two ways: one in the sense of past and the other looking into the future.

a. Pre-21st Century: Global Transition – Past and Present

The past, in the contemporary sense of approach, can and should be understood post-1820 (Industrial Revolution) till early 21st century. In this sense, the development of the world economy can be traced back to Feudal times to proceed after within a time span till the IR reflecting an exponentially rising growth curve unparalleled before as the diagram below based on studies of Angus Maddison shows.

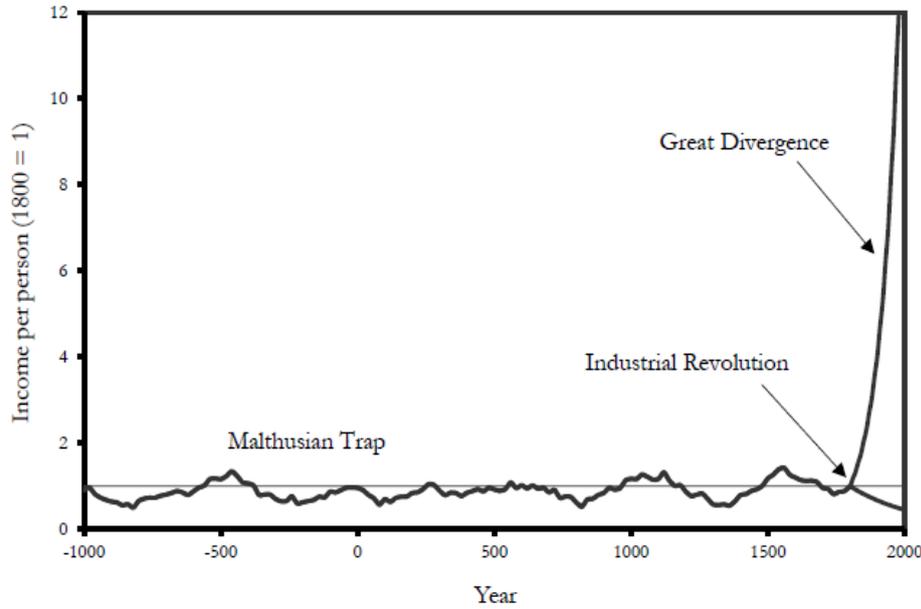


Figure 1 2000 years in one chart (Source: G. Clark. “*The Industrial Revolution*”. *Handbook of Economic Growth*. Aghion & Durlauf. Eds. Vol.2. 2014

Here what we can see is the striking picture of the last 2000 years in one chart. This is the first great divergence when Western Europe and North America diverged from the rest of the world. The Economist quotes from Maddison the diagram below which depicts the First Great Divergence on a comparative basis.

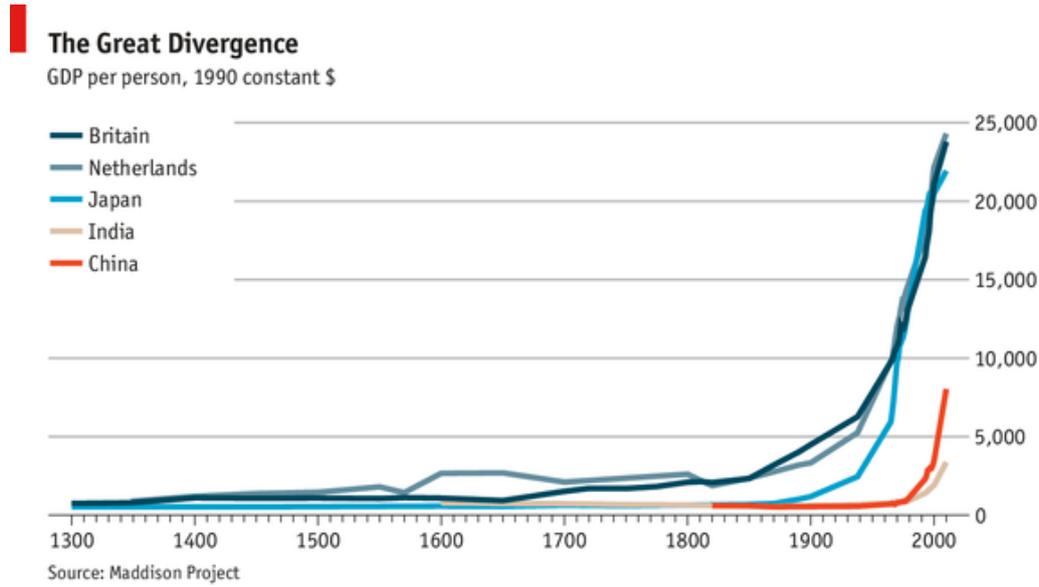


Figure 2 The Great Divergence. The Economist (2013) What was the Great Divergence?

Sept.2nd

Following the Industrial Revolution, the world economy developed on a basis of a *core and periphery model* with global trade in a two-way direction: Manufactured goods among the core countries and towards the periphery and raw material from the periphery to the core in the main. Transport and communications played a significant role in promoting trade with the steam first to be followed by electricity and petrol to serve as the propelling power putting steam ships, railways, cars and trucks and air transport at a permanently growing trend.

This page of imperialist era, after having experienced two devastating wars has been closed by the dissolution empire states – all in Western Europe.

After the breaking point of Bretton Woods meeting in 1944, the world economy has experienced through a long period of prosperity for nearly half a century till late 1990s, with an interim era beginning in 1985 and named as ‘*Great Moderation*’, a span of unparalleled macroeconomic stability and with prominence of institutions which epitomised the neo-liberal, free market ideology until a beginner decade ending by 2008. Then, as the Lehman Brothers, symbolising those institutions, collapsed, the critical question comes into effect: “Does the economic turmoil that began in 2008 herald ‘the end of globalization’? Well, it all depends on what we mean by ‘globalization’”⁷. The answer lies in the assessment of “the actual *structural* changes that are occurring in the way the global economy is organized and integrated”⁸.

In fact, the paragraph above can perhaps be labelled as the most condensed summary of the last 50 years of the world economy. The world economic order which has been devised by the Bretton Woods could not meet the expectations of its architects. The way out to the answer above lies in the metaphor of history of the genesis of the world economy before and after mid-twentieth century. Before then⁹, the world has been divided between the industrial powers of the *West and the rest*¹⁰ on a basis of industrialisation fed by a *core – periphery*

⁷ Dicken (2011), p.1

⁸ ibid

⁹ Especially before 1914

¹⁰ Here, though not in our main reference list, it may prove beneficial for those who might have an interest to refer Niall Ferguson (2011). *Civilisation: The West and the Rest*.

configuration. The global economic map of this situation endured until the WWII which shattered the bases of this division, mainly by the appearance of Capitalist – Socialist Blocs and the so-called ‘Third World’. Two compelling features have characterised the global economy, namely the emblematic concept of *economic development* and the growing *interconnectedness*. Among them, we can note two inter-connected fields, namely a steady growth of international trade and international transport. The two have proved to be given an unprecedented stimulus by the development of digital technology at exponential rates.

The era following the 1970s can be considered as a process of unbundling the world economic order through disruption of global mode of production via supply chains.

b. Global Supply and Value Chains

In analysing the transformation of the global economy from the state of hard-industrial economy pattern shaped by the Industrial Revolution of steam technology to the present-day economy pattern bred and staged by the ICT revolution, the global supply and value chains have the primary role to figure out the basic causes.

As the very word ‘*globalisation*’ has become the trademark for proponents of the *system*, and indeed, it is an axiomatic fact that through the flow of goods and services and financial capital at an increasing rate the countries over the world have become increasingly interdependent throughout the last quarter of the 20th century. It is in fact the mode of production process that happened to be more interdependent than the countries. *“If globalisation in the productive sphere implies functional integration between internationally dispersed activities, then the value chain perspective is an effective means of conceptualising the forms that this integration takes. It shifts the focus from production alone to the whole range of activities from design to marketing, and it problematises the question of governance – how chains are organised and managed. ...*

*The value chain view of global economic integration highlights that for many industries access to international markets is not achieved merely through designing, making and marketing new products. Instead, it involves gaining entry into international design, production and marketing networks consisting of many different firms.”*¹¹

For a better understanding of what the value chain is a figure excerpted from T. Sturgeon below can be of help. He attempts to define a value chain as *“the value chain describes the full range of activities required to bring a product or service from conception through the different phases of production, delivery to final consumers, and final disposal after use.”*¹²

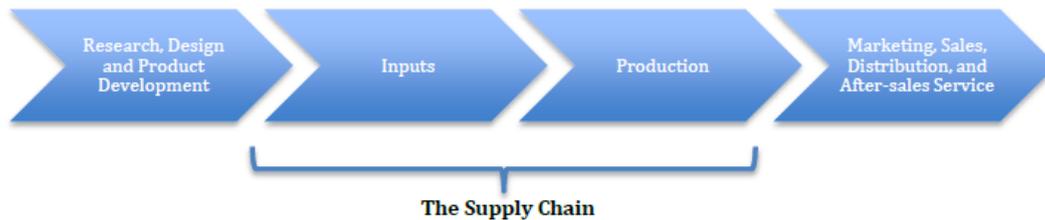


Figure 3 A simple value chain in four basic steps

¹¹ G. Gereffi, *et al* (2001).

¹² Sturgeon (2013). P.11

Sturgeon (2013) p.11 Fig.1

Most certainly, as Sturgeon himself clearly indicated, “the real economy is not so simple, linear, or unidirectional. Value chains are profoundly shaped by the institutions and regulatory regimes in which they are situated.”¹³ This is our primary approach as well, as we adopt a nonlinear methodology in analysing the global economic problems, as the global economy transforms from one form into another. This is much more important in the present interim period the world is passing through where the global production networks are all transforming together with the highly intricate architecture where many new concepts, institutions and datasets are all introduced. It is useless to go into analysing this very complex structure on a linear basis.

Global supply chains have transformed the world economy over the last 30 years. By making collaboration across borders easier than ever before, innovations will support further growth in supply chains. The Internet of things and developments in big data, improved communications technology will all boost supply chains. World trade and production are increasingly structured around global value chains. This can be specified as ‘*interdependence through growing connectivity*’ with the result of internationalisation of supply chains. In fact, the last era following the 1970s can be characterised as a process of unbundling the world economic order through disruption of long-established geographies of production via supply chains. “*There has been a huge transformation in the nature and the degree of interconnection in the world economy and, especially, in the speed with which such connectivity occurs, involving both a stretching and an intensification of economic relationship. Without doubt, the world economy is a qualitatively different place from that of only 60 or 70 years ago, although it is not so much more open as increasingly interconnected in rather different ways.*”¹⁴

It is here that two key words / concepts deserve attention: the ‘*nature of interconnection*’ and the ‘*speed*’ with which this connectivity occurs. Connectivity, in a way, has been the impetus of human societies for thousands of years. But today it gained an unprecedented momentum to affect and change the forces of reengineering the world and investing huge resources into the transport, energy and communications infrastructure and in linking the megacities flourishing in every corner of the planet, with revolutionary consequences in every part human life, societal as well as individual levels. Parag Khanna goes on to say that “*Connectivity is our destiny*”.¹⁵

c. Transport as part of GVC and as a form of connectivity

It is possible to say that connectivity appears to be a most effective ingredient of contemporary transport and logistics networks alongside with the totality of the economy. This feature has been elemental throughout the history, though, naturally, at most obscure forms. ICT made it possible for these sectors to run most effectively through the most developed forms of connectivity in the last decades.

GSCs are the circulatory system of the global economy where we observe “*two main approaches to analyse the global production networks. One is vertical specialisation approach which focuses on the measurement of domestic or foreign value added in a*

¹³ *ibid*

¹⁴ Dicken (2011). p.23

¹⁵ Parag Khanna (2016).

country's exports. This ratio is used as an indicator for vertical specialisation in international trade. The second perspective is the global value chain approach"¹⁶

As the wind of globalisation process has pushed the world economy into a state of continuous expansion in terms of trade and investment volumes around the turn of the 20th century, with structural shifts, this appeared to accommodate serious inherent problems. According to a study¹⁷ these may dramatically change the outlook of GVCs in the coming years. Because of the importance of GVCs in today's economy, these changes will also determine the future of globalisation. On the one side, there are factors that have promoted the emergence and growth of GVCs in the past and these are expected to facilitate the future expansion of GVCs. On the other side, there are other factors that push for a "new normal" of GVCs.

Till the outbreak of 2008 global financial crisis and even after, with the ongoing deep-rooted faith in the invisible hand, the dominant mood prevailed that globalisation would and will continue to create pressures to reallocate resources across sectors, firms (TNCs in the main) and occupations. Even long before the far-reaching effects of the Corona crisis have begun to be felt over the whole globe, the initial signs of another global change have put themselves into the scene: another time for global unbundling. Indeed it is time for substantiating Baldwin: "Globalisation means unbundling.¹⁸ All sorts of economic relationships were bundled spatially to avoid or minimise transportation; this situation implied that the price of many goods, services and wages were set in local markets, not in global markets."¹⁹ As Baldwin has indicated, the direction and nature of the change is impossible to predict with any accuracy. But one thing is clear: nothing will be the same in the new world especially after the end of recent pandemic.

2. From Present to the Future: Resetting?

When Samuel Beckett has written his play *Waiting for Godot*, as his work has achieved a world-wide success, this can be based on an eternal spiritual mind of humankind: hope. And the biggest factor for the world's planning can be ascribed on this: hope. This bizarre situation, though pretty exaggerated, reflects one fact: fuzziness. No matter how fuzzy it may be there are some elements of reliability which can be used in projecting a scenario for the future of the global economy.

In view of a virtually rich collection of serious works being carried out presently throughout the world, some points are in the way to come of priority. It is almost certain that the new world will be a place where

- (a) The climate and environmental issues will form a package of *sine qua non* in character.
- (b) The technology issue will be another factor of priority though with a bulky substance in terms of extreme caution in a multi-dimensional context.
- (c) The issue of connectivity will form another aspect of the new world not only in a virtual / digital dimension, but in the transport of goods and passengers.

¹⁶ Los & Timmer (2015) where the authors give a diagrammatic analysis of the working of the supply and value chains on a global scale, reaching input-output analysis to extend their study to inter-country input-output tables and the World Input-Output Database (WIOD).

¹⁷ Backer & Flaig (2017)

¹⁸ I underlined the words – author.

¹⁹ Baldwin (2006)

We are, as a whole world, in the threshold of a new global transformation era where there must be a critically new list of elements to carry the world to an unaccustomed one with either possible minimum cost or *vice versa*. This is inevitable any transformation involves its inherent costs.

3. Resetting or a new world with a new paradigm?

If we are in the midst (or, at the beginning stage) of a new transformative period, there will be a new global shift (unbundling) in the world economy. The Coronavirus crisis revealed the flaws in the GSCs. In our opinion, the seemingly greatest strength of the present global system, connectivity, has begun to work adversely as it turned out the greatest threat immediately by the outbreak of plague. However, though it may seem satirical, as the resilience of the connectivity inherent in the system has been fabricated and evolved by the ICT, the way out of this stalemate lies in the digital technology itself *per se*. The crisis exposed the vulnerability of the complex supply chains system as the linkages between producers themselves as well as those between buyers (consumers) and sellers (companies) were all locked down.

We think that we have come to a point where we have to ask ourselves whether we can make our judgements and analyse the issues with the paradigm basically depending on the one(s) constructed and evolved throughout the last 200 years?²⁰ A paradigm as such certainly cannot be written out simply by individual efforts; such a concept goes beyond the limits of a conceptualisation sphere; this certainly is not our intention. What we mean to do here is merely to suggest that the efforts based on a dying schedule is doomed to fail especially if it aims to extrapolate the future. Otherwise, the expectation of a paradigmatic shift should be carved into future exclusively by a new system on the remains of the ceased.

Whatever the new world economic order may be, it is bound to be organised by some serious constraints. In close connection / interaction with others, the most imminent and most insurmountable is the formidable problem of climate change and environmental destruction. The formulation of a new paradigm is destined to involve these basics alongside with others like the ones expected to be paraphrased by technology and society interaction.

Up to this point we spared too little place for transport in its own merit as compared with the title of this paper. This is of course not unintentional. The reason of this portioning is what we deem decisions concerning the transport as such either in operational or infrastructure depend on the fact that both decisions are up to focus on transport demand which itself is derived from other decisions. And all the issues we tried to analyse are connected with transport in one way or the other, directly and / or indirectly.

4. Transport of the future?

It is clear that transport activity, as part of the supply / value chains network, is a vitally important element of the networks of connectivity and the key role it plays gains further importance. And the formulation of a new paradigm is destined to involve these basics alongside with others like the ones expected to be paraphrased by technology and society

²⁰ It would not be wrong to say that the present base of the ruling paradigm has been evolved throughout the centuries long before the beginning of Industrial Revolution which consolidated the basics of Capitalist Civilisation and cannot be overlooked.

interaction. The destiny of GVCs and the transport networks, therefore, rests upon this group of determinants.

Based on our approach for the (near) future in which we come up with the perception that there will be a new paradigm to dominate the new world as a whole, no matter how less is known for this new world. What we only know for this new world is that ‘*the future is not what it used to be*’.²¹ Then what can / should be done to draw a roadmap for the future? Being conscious of our position not to turn it into a prophecy as such, all we can say is:

No historic event can be explained by cause & effect relationships of a certain time by the parameters of another time if and when we resort to the fact that the happenings of a certain period do not necessarily pass through the similar course in a sequential line. In other words, a configuration of a certain point of time can and will probably subject to the determinants of the same period and not those belonging to that already passed (or passing) away.

Therefore, we are in a position to realise that the password for passing through this interim period of transformation is to try to look to the future with a paradigm of the next period – which is not known yet.

In order to give an example of the importance of interpreting the vital concepts prejudicially, we can look at ITF. Even a globally leading giant organisation like ITF has the wrong approach to the transport *vis á vis* the Corona Crisis. In words of the Secretary-General of the organisation, the very concept of paradigm shift is interpreted in a rather shallow level considering it solely as a part of another usual fluctuation with the expectation that when economy returns to ‘*New Normal*’ after the restrictions imposed on the movement of goods and passengers are lifted, the transport sector will be functioning as before. This is a typical example of not realising the gravity of the process of transformation and, therefore, the real context of the very concept of paradigm. As we touched on above the concepts of certain time may (and most probably will) not be valid at another time. This is much more so in the case of the very concept of *paradigm*. If we refer to the meaning of the word, ‘paradigm shift’ is defined as “a great and important change in the way something is done or thought about” by Oxford Learner’s Dictionary. Then, we can bolster our perception of the concept of paradigm of the future of global economy – together with it “of the whole planet” let us clear.

The main theme of our study is grounded on the approach of the process of transformation of the global economy at large and the importance of analysis on grounds of paradigm shift. This shift cannot and should not viewed by putting the work on the lexicon of the outgoing. Therefore, the priority is on the work for a sort of simulation of the incoming mode of production on which the new paradigm will set on foot. If and when we attempt to do so we can be sure that our hypotheses can only approximate the real and not more.

The first thing we can say is the fact “*the issues COVID revealed will transform supply chains*”.²² This approximation will bring us to some characteristics we have to focus:

- (1) The focus on resilience must be first condition required.
- (2) Digitization will keep occupying high on the agenda.
- (3) In the transformation of supply chains there are emerging trends:
 - a. Developing more-agile mindsets and behaviours
 - b. Establishing dedicated risk-management functions
 - c. Increasing regionalization and inventory storage
 - d. Focusing on capability building and

²¹Kevin Sneader and Shubham Singhal (2020). *The future is not what it used to be: Thoughts on the shape of the next normal*. McKinsey & Company.

²² Alicke et al (2020)

e. Accelerating societal push for sustainability²³

Abbreviations

1IR: First Industrial Revolution

2IR: Second Industrial Revolution

GSC: Global Supply Chains

GVC: Global Value Chains

ICT: Information and Communication Technology

ITF: International Transport Forum

MGI: McKinsey Global Institute

OECD: Organisation for Economic Cooperation and Development

TNC: Transnational Corporation

WEF: World Economic Forum

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²³ *ibid*

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