

## Long Cycles: A Bridge between Past and Futures

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### **Abstract**

Developing an anti-fragile behaviour by enhancing foresight capacity is a mandatory asset in the risk society. Cycles of continuity and change are preferred topics in the fields of history, economics, and international relations. Although centred on the past, the long cycles theory in general, and George Modelski's model in particular, might offer valuable insights into probable futures that might be involved in the planning practice of international actors. By identifying recurring historical patterns, one could extrapolate future developments. However, the key assumption of the paper is that possible novel developments are bound to be influenced by a series of drivers, both trends and wild cards. Therefore, it is necessary to increase the predictive capacity of the long cycle theory by using future study methodologies. The present paper attempts to suggest some ways for doing that in a two-step progressive method. The first step is to identify the most important drivers that could trigger deviations from the extrapolation of historical patterns identified by the long cycles theory and to quantify the expected shifts in the distribution power by using four indexes: the Foreign Bilateral Influence Capacity (FBIC) Index, the Global Power Index (GPI), the Gross Domestic Product (GDP), and the State of the Future Index (SOFI). The second step is to implement appropriate foresight methods that could enhance the predictive value of the long cycles theory. The paper argues that the most likely for doing precisely that are the Trend Impact Analysis (TIA), summing up how current and likely future trends may change extrapolations derived from long cycles theory, and the Scenario Building, as a holistic approach that collects and distils the previously identified long cycles of extrapolations, trends and wild cards into several scenarios.

**Keywords:** Long Cycles, Trend Impact Analysis, Scenario Building

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### **Introduction**

The long cycles theory in International Relations (IR) take into account the cyclical nature of both economic developments (the Kondratieff waves) and politico-military developments – the succession of hegemonies, which are preceded by global wars. The present paper focuses on the second aspect, which sees in the distribution of power and variations within it the main elements that change the configuration of the international system. The long cycles theory presents a series of similarities with the power transition theory developed after World War II by authors such as Organski (1968) or Gilpin (1981). The power transition theory attempts to explain how international orders collapse by resorting to war. There are currently three major approaches to the transition of power. A first wave is promoted by Ikenberry (2011), and focuses on modifying power characteristics at a national level. A second trend is represented by Gilpin (1981). It analyses how the dynamics and morphological changes in power described by the first trend influence the relations between the international actors. Last but not least, a third current is promoted by Kaplan (2010) and takes into account the structural changes of the international

system. More specifically, researchers are analysing the impact that redistribution of power among actors has on the global system as a whole.

The power transition theory emphasizes that when an emerging power reaches power parity with the dominant power, the global war for hegemony becomes not only possible but also probable. Unlike long cycle theory, the theory of power transition does not give a certain periodicity to the rise and fall of great powers on the stage of international life, being particularly interested in the phases of transition of power and the importance of the degree of satisfaction or dissatisfaction of the challenger to the existing status quo.

Most scholars tend to position China as the main challenger for the USA (Friedman, 2005; Kissinger, 2011). This does not necessarily imply the assumption that the US has embraced a hegemonic role, the trend towards multipolarity being identified in many analyses as a key starting point of the future global society (Ikenberry, 2011).

This paper takes as a basis George Modelski's theory of long cycles, which puts forward an evolutionary perspective of the global system, which is cyclically marked by systemic transitions (Modelski, 1987). The Modelski theory can be encompassed in the second wave of reinterpretation of power transition theories, alongside the contributions of William R. Thomson and Joshua S. Goldstein (1988). Moreover, according to the latter, it is representative for the peace-oriented leadership cycle school.

Modelski starts from the premise that a hegemonic cycle takes approximately 100-120 years to complete. Such a cycle represents a period of extensive social transformation and economic development. It is divided into four main phases, each phase stretching over a period of 25-30 years. These phases are: (1) *The Global War* – the interval of time that marks the transition from one cycle to another, which is achieved, in most cases, through war, (2) *World Power* – that period of time when hegemonic power is acknowledged as a global power and imposes its role in organizing the global system, (3) *Delegitimation* – the period of time when the erosion of the legitimacy of the global leader and new economic and social developments take place, and (4) *Deconcentration* – that period of time when the power of the global leader reaches its lowest level, a new power appears that could endanger the status of the global leader and make new alliances. Seen from the challenger's point of view, the *Delegitimation* phase coincides with the *Clarification* phase of the new emerging dominant power. Similarly, the *Deconcentration* phase of the dominant power coincides with the *Coalitioning* phase of the challenger.

According to George Modelski (1987, p. 40), the global system has witnessed five long cycles: 1494-1580; 1580-1688; 1688-1792; 1792-1914; and 1914-2030. Portugal dominated most of the 16<sup>th</sup> century (1516-1560), the United Provinces most of the 17<sup>th</sup> century (1609-1660), the United Kingdom (UK) most of the 18<sup>th</sup> century (1714-1763) as well as most of the 19<sup>th</sup> century (1815-1873) throughout two cycles in a row, and the United States (US) the era following the Second World War till the end of the 20<sup>th</sup> century (1945-2000). At critical junctures, all these nation-states have reached a point where their power has suffered a relative decline, due to the rise of a new challenger, i.e. a great power aspiring to exercise world leadership.

The reasons for choosing the Modelski model are twofold. Firstly, unlike other proponents of the long cycles theory, who saw the value of long cycles theorizing only in a better understanding of the dynamics of the international system, Modelski understood its predictive value as well and extrapolated the long cycles patterns into the future. Secondly, he saw the successive cycles as “a progressive process of learning” (Modelski, 1987, p. 2), which opens the prospect of forging previously untested arrangements at the level of the global system. Therefore, as it can anticipate both certain recurrent historical patterns and possible novel evolutions, Modelski model seems better suited for anticipating the future path of the global system.

In relation to the current cycle, previous research has tested the Modelski model against major events and milestones throughout the period commonly known as the “American Century.” Overall, Modelski's chronology for the first two phases was confirmed, with the Global War phase spanning the period of the two World Wars and the World Power phase covering the period between the end of the Second World War and the mid-1970s. By contrast, put forward in 1987, his extrapolations and expectations for the next two phases proved to be less accurate. Like many other political scientists and world theorists, he failed to anticipate the breakdown of the USSR, assuming wrongly that the Soviet Union would continue to be the main US challenger throughout the first decades of the 21st<sup>st</sup> century. In fact, he missed applying his own comment, that the new global power would not necessarily be the challenger to the dominant world power, but also an ally of the former, which is exactly the case of China, which during the Cold War was both an ally of the then challenger, the Soviet Union, and then, after the Sino-Soviet split, a de facto ally of the US against the latter. Thus, the fact that China seems to be the main challenger for the US, with Russia acting as a junior challenger, can be rationalized in the context of Modelski's own theoretical framework.

In light of recent and current political developments in US-China, US-Russia, and US-European relations, Modelski's chronology for the last two phases was reassessed accordingly, with the Delegitimation / Clarification phase spanning the 1978-2008 / 2009 period, instead of the 1973-2000 period, and the Deconcertation phase covering the 2008 / 2009-2038 / 2039 period, instead of the 2000-2030 period (Pop, 2017).

Moreover, recent developments in the US-China relationship have shown two major divergent tendencies, which argue the idea of a bifurcated future. On the one hand, there is a tendency towards contingent collaboration, generated by three important factors: the economic interdependence between the two major competitive powers; the partial recognition by the Western powers of the role that emerging economies in general and China in particular are called upon to play, particularly in global economic governance; and China's commitment to play a more substantial role in the globalization process by launching large scale global and regional projects such as the Belt and Road Initiative (BRI) or the Asian Infrastructure Investment Bank (AIIB). On the other hand, there is a tendency towards confrontation, generated by two other important factors: the temptation of trade wars; and the possibility of military escalation of tensions associated with Taiwan's status or the territorial disputes over the islands of the South China Sea and the Senkaku / Diaoyu islands, either directly or by proxy (Pop & Brânză, 2017).

The Modelski model can be particularly useful for researchers and practitioners of international relations, not only as a retrospective, but also as a prospective device. Its prospective use is indicative not only of the trends and patterns of evolution of the phase in which the current cycle of power is at present and the vectors that influence it, but also of the anticipation of the moment of inauguration of a new cycle and of its configuration. However, in order to overcome its in-built limits and improve its predictive value, one should implement appropriate foresight methods, including the Trend Impact Analysis and the Scenario Building.

Based on these prerequisites, the present study aims to contribute to the debate on the future of the US-China relationship, trying to give a possible answer to the following dilemma: Will we have to deal with a typical succession of hegemonies, accompanied by global war, according to the pattern of earlier centuries? Or rather, against the backdrop of the trend towards multipolarity and complex interdependence between the current and future dominant power, will we witness a new peaceful transition of power, similar to the transition from the second British cycle to the current US power cycle? Depending primarily on the nature of the relationship between the present and the future dominant power we outline three possible scenarios of the future development of international relations. Those scenarios represent a blend that pile up the extrapolation of four indexes with some *drivers* and wild cards that could

deviate the values from initial tendencies. The historical data of the four indexes are extracted from the work of Moyer *et al* (2018) and Glenn & Florescu (2017). Those indexes are extrapolated with mathematical modelling offered by *MATLAB Neural Network Toolbox* and *International Futures (IFs) modelling system-Version 7.31*<sup>1</sup>. Although the quantitative methods achieved a certain maturity, as the period of forecasting gets longer, the results are bound to be modified under the pressure of some unforeseen influences. Therefore, the quantitative modelling must be used in conjunction with qualitative techniques, to better shape not only one trend, but many. Those trends are smoothed out by some drivers and wildcards. But even so, since political decision-making is dependent on individuals, the value of mathematical modelling decreases over the long run. That being said, the value of our research is less in its accurate forecasting than in its usefulness for policy planning and opening up the minds towards considering new possibilities and changing the policy agenda.

### **Methodological approach**

The first foresight method used by us is the Trend Impact Analysis. Bradfield *et al.* (2005) ponders that this method involves four steps: (1) data collection, (2) creating an algorithm for the extrapolation of trends, (3) creating a list of unpredictable events (wild cards), and (4) identifying the impact of wild cards over trends (Bradfield *et al.*, 2005, p. 801).

Affinity towards this method is illustrated by the logic of megatrends, global change drivers, and wild cards. The identification of megatrends and drivers can represent the link between long cycles and anticipation.

One of the most objective analyses of megatrends and drivers that will influence the foundation of tomorrow's world and, implicitly, the relationship between the US and China belongs to Al Gore (2013). The author examines a number of six drivers that he considers to be of an utmost importance in defining tomorrow's society.

The first driver refers to the emergence of a global economy that is developing increasingly more like a systemic entity. The self-adaptation of the economy to the new technological realities has led to the integration of nanotechnologies and 3D printing into the automation of production. The shortening of time of obtaining goods has accelerated multinational integration. From the point of view of technology development, the US-China relationship is quite complex. Although at first sight we are tempted to notice its competitive nature, in fact we can bring many arguments in favour of increased cooperation in the field of scientific research. For one, approximately 10% of employees in Silicon Valley come from China (Motoyama *et al.*, 2014). This creates a solid base for a positive relationship between the two countries. On the whole, although the governance systems of the two countries are different, their ultimate goal is roughly the same: technological development for the benefit of their respective people.

The second driver refers to the alert development of the information society and the global communications network. Telecommunications have become a vital element of all sectors of activity – from economy to healthcare. Moreover, since 2016, cyber space has become an operational environment officially recognized by NATO. This fact highlights the importance of the informational environment and shows the willingness of the parties to use it in the event of a military confrontation. In this competition, China starts as a favourite, as the US government itself acknowledges. At the beginning of 2018, in the American press were leaked some information from the 5G document *The Eisenhower National Highway System for the Information Age* (Lekack, 2018). The document nominates China as the main winner in the new generation

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<sup>1</sup> This version can be consulted at [http://www.ifs.du.edu/ifs/frm\\_MainMenu.aspx](http://www.ifs.du.edu/ifs/frm_MainMenu.aspx).

of networks, being already prepared to control over 70% of the market. The 5G will amplify the expansion of Internet of Things and will facilitate the artificial intelligence (AI) and the phenomenon of gamification of population. Therefore, this driver tilts the balance of the relationship towards an escalation of tensions between the two states.

The third driver refers to the emergence of a new balance of power. From Al Gore's point of view, the new balance repositions the regional initiative from the West to the East and from the North to the South, and shifts the power from the nation-states to private actors such as transnational companies, including IT companies and large data owners (Google, Facebook, IBM, Huawei). The redistribution of power is the only driver that imparts to the US-China relationship a bifurcated and uncertain future. It represents a risk to the great powers, but also an opportunity to rethink the relationship between the US and China on fundamentals more suited to current geopolitical realities.

The fourth driver is the rapid over-population, combined with limited natural resources – both energy and food. Uncontrolled demographic growth is one of the main challenges of tomorrow's world. The International Futures models estimate that the world's population will reach 8.3 billion people in 2030, rising from 7.1 billion people in 2012.<sup>2</sup> The population of 2030 will consume more resources and pollute more, degrading the environment accordingly. The middle class will expand significantly in the next 15-20 years. Even the most conservative models envisage an increase in the world average of the middle class from the current 1 billion to more than 2 billion people. Limited resources are an important driver that can affect the relationship between the US and China. From a historical point of view, the need for resources has pushed the countries into conflicting relations. For this reason, if the Chinese state does not find adequate solutions to the problems associated with the demographic challenge, we may witness a violent change of the power cycle.

The fifth driver is represented by genetic and biological technology developments that will influence life itself. China aims to become the world's first power in genetics and life science. Transhumanism, synthetic biology, and 3D print of organs reveal a new way of sustaining life on earth. This driver imparts a positive path to the relationship between the US and China, marked by collaboration, as emphasized by Motoyama *et al.* (2014).

The sixth driver is represented by ecology and how society will position itself in relation with the environment. Models like International Futures show us that global annual water requirements will reach 6,900 billion cubic meters (BCM) in 2030, 40% below the current potential of water supply. Agriculture, which requires about 3,100 billion cubic meters, or less than 70% of today's global water reserve, will then need 4,500 billion cubic meters, not counting the possible improvements. This driver will negatively affect the relationship between the two states. China will be affected by major climate changes. Changes will lead to pressures on natural resources that will be associated with rapid urbanization, industrialization and economic development. According to International Futures models, around the year 2050, the availability of fresh water in China, particularly in large river basins, will decrease dramatically. China's average temperature will increase by 2° C by the middle of the century, putting pressure on finding solutions to pollution that are agreed on internationally and by the US.

We believe that the aforementioned tendencies can be complemented by the following defining elements:

*Population aging, both in the West and in developing countries.* In the year 2030, the average age in the US and the EU will exceed 40 years, while Asia will remain under 35 years of age. These differences impart a dynamic character to the relationship between China and the US. Migration will be increasingly more of a cross-border problem, but which can be regarded

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<sup>2</sup> Estimates made with the International Futures application

also as an opportunity for the aging countries. Growing urbanization will boost economic growth, but this will affect food and water resources, leading to new patterns of urban organization.

*The vulnerability of critical infrastructures.* The expanding phenomenon of hacktivism and the increasing number of cyber-attacks will lead to massive investment in security and protection of critical infrastructure. USA will seek to limit and condemn Chinese hacktivism, which will worsen bilateral relations.

Some of these megatrends are echoed in the following *four objective indexes*: The Formal Bilateral Influence Capacity (FBIC) Index<sup>3</sup>, the Global Power Index (GPI),<sup>4</sup> the Gross Domestic Product (GDP)<sup>5</sup> and the State of the Future Index (SOFI).<sup>6</sup> The data sources for those indexes are the International Futures (2017) – for SOFI, and Moyer *et al.* (2018) – for FBIC, GPI, and GDP. These data represent the quantifiable element of TIA. The indexes respect the TIA stages – they were developed (stage 1 of the analysis being completed) and they have already extrapolation algorithms calculated (phase 2 of the analysis also being covered).

Extrapolation of the Formal Bilateral Influence Capacity (FBIC) Index reveals the upward trend of China and the downward trend of the US, as can be seen in Figure No. 1.

Chronological analysis reveals the fact that in the year 1963, the US held a capacity to influence amounting to approximately 25% of world value. At that time, China had a capacity to influence of approximately 1% of world value. Since 2010, China's index has started to improve significantly. In the year 2035, China's FBIC Index will probably exceed the FBIC Index of the USA. Until 2052, China's FBIC Index will continue to grow, while the US FBIC Index will decline. However, in 2052 China's capacity to influence bilaterally will represent only 8% of world value. The percentage raises questions over the ability of China to take over global hegemony. Rather, it is an additional indication of the possibility of changing the hegemonic pattern previously promoted over the last five centuries, in the sense of moving to a new pattern characterized by cooperative multipolarity.

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<sup>3</sup> *The Foreign Bilateral Influence Capacity (FBIC) Index (Weighting of sub-components of Dependence in FBIC Index)* represents an index used by Moyer *et al.* (2018) for the measuring of power and influence in international relations. FBIC is expressed as a percentage of the world's total.

<sup>4</sup> *The Global Power Index (GPI) (featured in recent Global Trends reports produced by the National Intelligence Community), which measures multidimensional, institutional, economic, material, technological and military national capabilities*, represents an index used by Moyer *et al.* (2018) to measure the strength and influence in international relations. GPI is expressed in percentages of the world total and defines the multidimensionality of power.

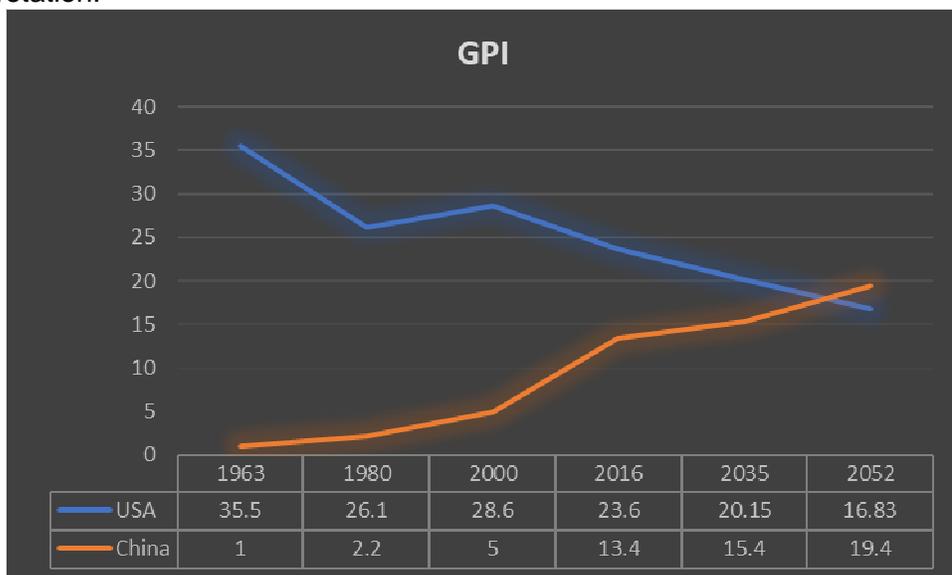
<sup>5</sup> *Gross Domestic Product (GDP) at Market Exchange Rates is the sum of all domestic goods and services produced domestically and is often used as a proxy for national capabilities.* GDP is also used by Moyer *et al.* (2018) for measuring power.

<sup>6</sup> *State of the Future Index (SOFI)* is an index showing the degree of multilateral development of a state. The index was developed by The Millennium Project and it is used by the Millennium Project in its annual State of the Future reports.



*Figure No. 1: Evolution of FBIC Index: Comparative Analysis - USA, China*

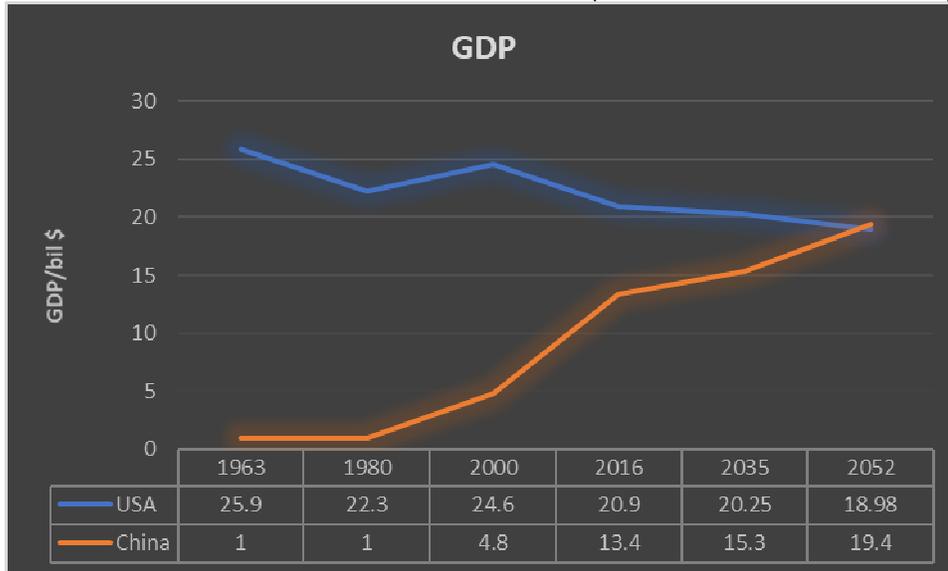
The Global Power Index (GPI) follows the same trends: a downward curve for the US and an upward trend for China. The index is depicted in Figure No. 2. The two curves intersect in the year 2040, when China's power will be superior to that of USA. The result should not be surprising, given that the GPI measures the multidimensionality of institutional, economic, material and military-technological capabilities at national level. In 2050, although China will hold 20% of global power, the US will continue to hold 17% of global power. Thus, while the ratio between the FBIC of the year 2052 of the two states is 1 to 4 in favour of China, the GPI ratio is approximately 1 to 1. This index brings a new argument in favour of the above-mentioned interpretation.



*Figure No. 2: Evolution of GPI: Comparative Analysis - USA, China*

A third objective index capable of detailing Modelski's model is the Gross Domestic Product (GDP). This is rendered in Figure No. 3. In the year 2000, the US had 25% of the world's GDP, and China only 5%. We estimate that in the year 2050, China's share of the global

GDP will exceed that of the US. However, it is important to note that there are far bolder estimates of US GDP growth, such as those of the OECD. Thus, the OECD estimates that by 2050 China will have overtaken the US GDP twice (International Futures, 2017).



*Figure No. 3: Evolution of GDP: Comparative analysis - USA, China*

The fourth goal for completing the Modelski model is the State of the Future Index (SOFI). This is broadly depicted in Figure No. 4. SOFI represents a more robust and complex index that outlines the development of society. It combines 29 variables,<sup>7</sup> including economic inequalities, population growth, research spending, afforestation, or access to drinking water (Millennium Project, 2017). The general trend of SOFI is a downward trend for the US and an upward trend for China. Unlike the other indexes analysed, the change of the best performer has already taken place. The current trend is not at all beneficial to the status of USA's hegemony, with barely a chance in the year 2040 to modify the SOFI trend upwards.

<sup>7</sup> The variables are as follows: (1) GNI per capita, PPP (constant 2011 international \$) (world); (2) Economic income inequality (income share held by highest 10%); (3) Unemployment, total (% of world labor force); (4) Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of population); (5) CPIA transparency, accountability, and corruption in the public sector rating (1=low; 6=high); (6) Foreign direct investment, net inflows (BoP, current \$, billions); (7) R&D expenditures (% of GDP) (world); (8) Population growth (annual %); (9) Life expectancy at birth (years); (10) Mortality rate, infant (per 1,000 live births); (11) Prevalence of undernourishment (% of population); (12) Health expenditure per capita (current \$); (13) Physicians (per 1,000 people); (14) Improved water source (% of population with access); (15) Renewable internal freshwater resources per capita (cubic meters); (16) Biocapacity per capita (gha); (17) Forest area (% of land area); (18) CO2-equivalent mixing ratio (ppm); (19) Energy efficiency (GDP per unit of energy use); (20) Electricity production from renewable sources, excl. hydro (% of total); (21) Literacy rate, adult total (% of people aged 15 and above); (22) School enrollment, secondary (% gross); (23) Share of high-skilled employment (%); (24) Number of wars and armed conflicts; (25) Terrorism incidents; (26) Social unrest indicator (number of protest events/ total events) (%); (27) Freedom rights (number of countries rated "free"); (28) Proportion of seats held by women in national parliaments (%); (29) Internet users (per 100 people)

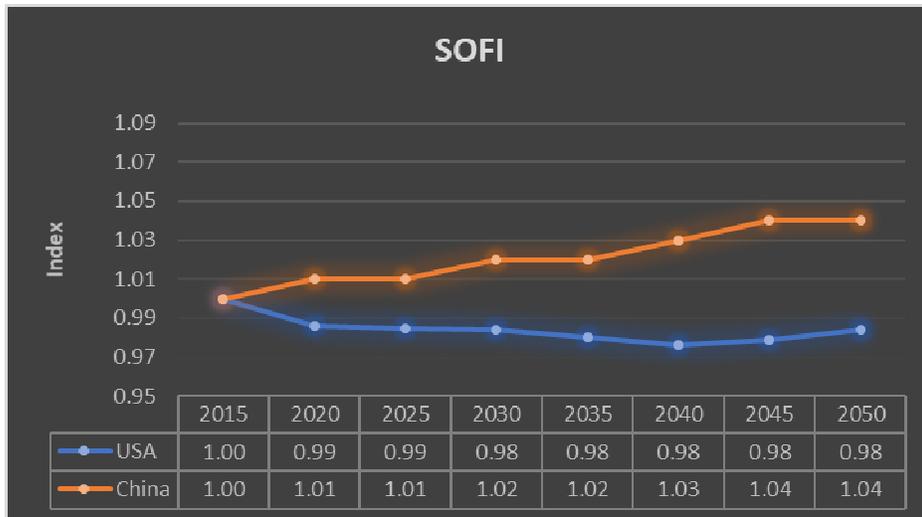


Figure No. 4: Evolution of SOFI: Comparative Analysis - USA, China

We note that the four selected indexes highlight an upward trend for China, typical for a challenger in the *Coalitioning* phase, and one descendant for the US, typical for a dominant power in the *Deconcentration* phase.

Although we have identified a general trend at the global system level, the information and data obtained are not enough to accurately estimate the end of the current phase of the Modelski cycle. The Trends Impact Analysis complements our conclusions by nominating the factors that can tune the identified extrapolations. To do this, we will go through steps 3 and 4 of the TIA.

No matter how efficient and accurate a prediction model is, it cannot have a 100% success rate. This happens as there is the possibility of occurrence of wild cards that could have ample effects on the evolution of the power relationship that is the subject of our research. Their unexpected and surprising character on the already built series gives them a great deal of importance in our research. These unique unforeseeable events can have major impacts on megatrends, drivers and indexes. Based on the events identified by the International Futures (2017), Strategic Survey (2016), Focus Project (2016) and Talwar (ed., 2015), we selected a number of 7 wild cards that will be able to influence developments in the current Modelski cycle. Those are:

1. The emergence of the ecological society;
2. Implementing a Bretton Woods 2.0 system;
3. The enlargement of the UN Security Council;
4. China's democratization;
5. EU federalization;
6. A solid alliance between China and the Russian Federation;
7. A non-aggression pact between the US and China.

The seven wild cards have been analysed in terms of the impact they can have on megatrends, drivers and indexes. Their probability of occurrence, the years until impact and the maximum impact of the event were detailed in the table below.

| No. of the event | Likelihood of appearance in 2023 | Probability of occurrence in 2035 | Years until the first impact | Years up to maximum impact | Maximum impact |
|------------------|----------------------------------|-----------------------------------|------------------------------|----------------------------|----------------|
|                  |                                  |                                   |                              |                            |                |

| No. of the event | Likelihood of appearance in 2023 | Probability of occurrence in 2035 | Years until the first impact | Years up to maximum impact | Maximum impact |
|------------------|----------------------------------|-----------------------------------|------------------------------|----------------------------|----------------|
| 1.               | 35                               | 90                                | 5                            | 18                         | 6              |
| 2.               | 30                               | 70                                | 5                            | 18                         | 5              |
| 3.               | 10                               | 30                                | 10                           | 18                         | 2              |
| 4.               | 30                               | 50                                | 5                            | 18                         | 3              |
| 5.               | 50                               | 90                                | 5                            | 18                         | 3              |
| 6.               | 20                               | 40                                | 5                            | 18                         | 6              |
| 7.               | 30                               | 60                                | 5                            | 18                         | 5              |

*Table No. 1: List of wild cards*

The events identified above will influence the values of the selected indexes with up to 20%. For this reason, wild cards can rewrite the evolution of the present Modelski cycle.

Next, combining the seven discrete events with the main megatrends and the four indexes mentioned above, we have obtained a number of three scenarios, which are detailed below.

## Results, discussion and implications

We have utilized the Probabilistic Modified Trends – one of the three main approaches in the current state of the art of scenario construction.<sup>8</sup> The three scenarios are as follows:

### **Grand Entente**

This scenario envisages a G2-led multilateral cooperative multipolarity, in which the US-China relationship takes the shape of an ad hoc coalition building. This scenario takes as major economic premises the joint commitment of both the US and China for advancing the globalization process, the relative satisfaction of China vis-a-vis the status quo, due to the possible implementation of a new Bretton Woods system, in which the role of the emerging economies in global governance would be fully recognized, and the Special Drawing Rights (SDRs) would be reinforced by enlarging the basket of currencies on which it is based to all major economies<sup>9</sup> (Pop, 2015, 2012).

The global strategic partnership between the EU and NATO will bring more cohesion to the notion of the West. Although the differences persist between the West, on the one hand, and China, Russia and other emerging countries, on the other hand, their scope narrows down. In addition, grand Chinese globalization-inspired projects, such as the Belt and Road Initiative (BRI), and the Asian Infrastructure Investment Bank (AIIB) enjoy a great support worldwide.

Under this scenario, as in the case of the transition from the second British hegemony cycle to the current American hegemony cycle, the transition of power will be peaceful. The scenario will be influenced by the likelihood of events 1, 2, 3, 5 and 7. Ecological society will

<sup>8</sup> From Bradfield's perspective *et al.* (2005) and Johansen (2018), there are three main approaches to the construction of scenarios: La Prospective school; the Probabilistic Modified Trends School; and the Intuitive Logics school.

<sup>9</sup> Currently, the SDRs basket of currencies include the US dollar, the British pound, the euro, the Japanese yen, and the Chinese renminbi (RMB). The RMB has become the fifth currency in the SDRs' basket of currencies starting the 1<sup>st</sup> of October 2016.

change energy security to its core. All technologies that use coal and oil will be replaced. Stakeholders will want to secure access to the new opportunities offered by renewable energy resources and AI. The change will be so profound that it can only be implemented in at least 20 years. From a social point of view, post-formal education, which will occur throughout the whole life (Gidley, 2010), and professional reconversion, will become predominant. In terms of international politics, a possible enlargement of the UN Security Council will better reflect the actual distribution of power in the world, but it will generate also discontent among several of the many aspiring permanent members who won't benefit from it. The federalization of the EU will strengthen the role of the European Union as a global actor, giving it a unique, coherent and unified voice on the international stage, which will make smoother both its cooperation with the US-China-Russia strategic triangle, as well as its structured dialogue with other emerging powers.

A reformed UN will be much more active and competent, and the political will of the G2 represented by the US and China will be felt both within the UN and in other key international organizations and institutions such as the World Trade Organization (WTO), the International Monetary Fund (IMF) or the G20. Political power in China will continue to be controlled by the Chinese Communist Party (CCP), but the liberalization that has occurred already in the economic, cultural and social fields will also embrace the Chinese political system. Iraq, Afghanistan and the Middle East will be stabilized. Following China's taking an increased role in the peace process in the Korean peninsula, the latter will be denuclearized, paving the way for its reunification.

From 2040 onwards, China and the US will become partners in international affairs. The US will have a GPI indicator of 15% and China one of 24%. The G2 will have the power to influence almost half of the globe. Both the USA and China will have a SOFI that will be stabilised around the value of 1.<sup>10</sup> Economic growth will prevail in both China and the US, there will be no recession or major trade wars, and complex interdependence in the economic realm will have positive and beneficial consequences for both parties. From a military point of view, there will be no major military conflicts or tensions between the two states.

Capitalizing on their advances in AI and robotics, the US and China would lead the automation revolution in concert with a host of Asian and European countries which have positioned themselves in the vanguard of the digital era.<sup>11</sup>

The protection of the planet's ecosystem will score high on both governments' agenda, following a US-China Apollo-like goal to address global climate change, with a NASA-like R&D program to achieve it that others can join (Glenn & Florescu, 2017). There will be solutions and well-defined social policies regarding migration, health and education. There will be agreements between China and the US on the opening of the labour market and intense exchanges of goods, human resources and know-how between each other and also globally.

### **The China Teapot**

This scenario envisages a competitive multipolarity (Pop, 2014), in which the US-China relationship takes the shape of sheer rivalry. This scenario takes as an economic premise a reversion to regionalism (World Economic Forum, 2012, pp. 18-19) triggered by re-basing the international monetary system on a dollar-renminbi-euro triad or, in the event of a renewed euro crisis, on dollar and renminbi (Pop, 2015, 2012). In this scenario, China, as the senior

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<sup>10</sup> Estimates made using International Futures.

<sup>11</sup> Such countries might include South Korea, Japan and Singapore in Asia; and Estonia, Finland, Sweden, Denmark, Iceland, and Germany in Europe.

challenger, will align itself with Russia, as the junior challenger, to challenge the US, whereas the latter will align with the EU.

In 2040, more than half of the world's states are currently supplying China's material, financial and human resources, bringing the Chinese teapot to the boiling point. The scenario will materialize in the event of the occurrence of event 4. Powering smart software or even super intelligent machines would not only disrupt the job market, but entire industries. But the benefits of automation and technological innovation would not be equitably distributed across societies. Moreover, as the human-computer link becomes stronger, people will make it harder to distinguish between real life and the virtual environment, being tempted to value more the existence in the latter environment. Against this background, hacking practiced by some super-empowered individuals and non-state networks could become the new norm, with a huge impact on international politics.

China's democratization will not only have beneficial effects, but also unintentional negative consequences. The Chinese state will become increasingly nationalist, and any internal turmoil will lead to a mass migration on the part of the Chinese, which will affect the whole world. Although there will be no war, beginning with the year 2040, China and the US will be rivals. The USA will have a GPI of 14%, while China will have one of 23%.<sup>12</sup> Both the US and China will acquire a SOFI of around 1, but on the downward trend for the US.

The economies of both states will be in decline, and the new game in town will be the zero-sum game generated by the competition for resources and spheres of influence worldwide. The US will not accept China's desire to expand its markets. The two countries will continue to invest in sending military forces around the world in sensible areas in order to test them. The US policy towards China will be characterized by isolation and containment. Between the two powers there will be frequent disputes within the UN. Protecting the ecosystem of the planet will be missing from the agenda of the two governments. There will be no agreements concluded between China and the US on the subject of opening job markets. Trading of goods, human resources and know-how between states will be declining.

### **Back to the Past**

This scenario takes as an economic premise the fact that the US dollar remains the main international currency. However, other currencies also play a role in the international monetary system as reserve currencies, anchor currencies and on international markets for goods and assets. Among the latter one would include the euro and the renminbi (RMB), as well as a possible single currency of North America, East Asia (or East Asia plus Australia, New Zealand and India) or even of the BRICS group (Pop, 2015). From the point of view of power distribution, the international system will turn into an ad hoc bipolar one, similar to the one prior to the First World War. Frustrated by the rather slow pace of the process of matching their weight with their power and influence within the global economic governance structures, the emerging and developing countries will opt for external balancing. The "rise of the Rest" will be no longer peaceful. China will prepare itself to become the new hegemonic power and the US-China rivalry will reach its pinnacle. In addition, China's string of pearls strategy to gradually take control over key strategic ports will bring China on a collision course not only with the US, but with the EU as well.<sup>13</sup> In this scenario, China aligns itself not only with Russia, but also Iran and possibly Turkey (which would defect from NATO) and a host of non-state actors to challenge the West, i.e. the US and its European allies.

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<sup>12</sup> Estimates made using International Futures.

<sup>13</sup> After taking over the largest passenger port in Europe, namely the port Piraeus of Greece, the Chinese would like to get the most important port on the Black Sea and also Bulgaria's largest port on the Black Sea, namely the port of Varna.

In the year 2040, a great war might erupt which could expand globally. The scenario will materialize in the event of the occurrence of event 6. Since its population has reached 1.45 billion inhabitants, its resources are no longer available. China and the US are direct enemies. In 2050, the US will have a GPI indicator of 18.32%, and China one of 18.25%.<sup>14</sup> Both the US and China will have a SOFI around 1, but will enter a cycle of decline with the onset of the war. The economies of the two states will no longer register exchanges of goods and services. Issues generated by Taiwan's status or the conflicts created between China and its neighbours over the fate of the disputed islands of the South China Sea will further feed the war. In turn, the controversy surrounding the Senkaku / Diaoyu islands<sup>15</sup> could provide Beijing with the pretext of a war with Japan that would involve the US as well.

In 2040, US politics will be characterized by open antagonism vis-à-vis Communist China. China will respond with the same currency. There will be frequent disputes within the framework of the UN between the two powers, and each will attract allies on their side. Protecting the ecosystem of the planet will no longer be on the government agenda of the two states. There will be no agreements between China and the US on the opening of the labour market and no exchanges of goods, human resources and know-how between the two countries.

## Conclusions

At present, we have a bifurcated future as far as the relationship between the dominant power, the US, and its main challenger, China, is concerned. Although both cooperative and confrontational futures are possible, the implementation of the two above-mentioned foresight methods suggests that there are more opportunities for reiterating the kind of peaceful transition experimented for the first time by the global system in the context of the First World War. In this case, the global system would learn from its own past mistakes, in line with the “progressive process of learning” emphasized by Modelski. However, the possibility of a power transition accompanied by a global scale war is not to be discarded altogether. The TIA method points to the year 2040 as a potentially dangerous threshold, which would initiate a new power cycle. In this case, the reassessment of Modelski's chronology in light of recent events would be confirmed. Accordingly, the Deconcentration / Coalitioning phase of the current cycle would have the same number of years as the Global War phase of the current cycle (1914-1945), in other words just a year more compared to the standard 30-year period (2008 / 2009-2040).

From a twofold perspective – normative and probabilistic – the three scenarios put forward by this paper could be characterized as follows: The first one is the most desirable and quite possible; the second one is less desirable, but the most probable; and the third one is the least desirable, but quite possible. That being said, integrating research results into European policy planning and interpreting them from the perspective of EU security interests is more than necessary.

At present, Germany, France and Italy hold together a double capacity of influence compared to that of the USA, as reported by the FBIC Index. Although this ability is important, it is decreasing rapidly, as the GPI and GDP indexes show for the three above mentioned states,

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<sup>14</sup> Estimates made using International Futures.

<sup>15</sup> Senkaku Islands dispute refers to a territorial dispute over a group of uninhabited islands known as the Senkaku Islands from Japan (Diaoyu and Tiaoyutai). Apart from the 1945-1972 period when it was under US administration, the archipelago was controlled by Japan. Both the People's Republic of China (PRC) and Taiwan also claim that the islands would belong to them.

which measure half of the USA's scores. Therefore, at this point, the EU has no real chance to engage itself in the race for occupying the second top power position. If we add also the multiple crises the European Union faces at present (the Eurozone crisis, the post-Brexit crisis, the refugee crisis, the dilemmas regarding the future of Europe), this conclusion becomes more than evident. Therefore, the EU's security interests ask for a peaceful transition to the new power cycle characterized by multilateralism and multipolarity.

For monitoring the dynamics of power relations and taking informed decisions favourable to its security interests, the EU will need to consider analysing the FBIC, GPI, GDP and SOFI. The cumulative FBIC of the US and the EU should not fall below 15%, while that of China should not rise above 6%. From the GPI point of view, the US and the EU will have to avoid falling below 20%, and China to grow more than 15%. In terms of GDP, the US and the EU should have a common value at least equal to that of China. Last but not least, the EU will need to pay particular attention to SOFI, for it not to drop below 1.

For a transition of power without global war, it is desirable that the EU aims at accomplishing the first scenario: **Grand Entente**. This will implicitly promote some of the discrete events considered in this paper, such as the ecological society or the implementation of a Bretton Woods 2.0 system. The ecological society will rewrite history, engaging in one of the most profound global changes. Implementing a Bretton Woods 2.0 system will probably open a new chapter of global economic governance, in which the role of emerging economies will be fully recognized, giving way to an increased stability of the international system.

Against the background of the emergence of AI-driven economy, the EU will have to support the US-China cooperation. With regard to the alert development of the information society and the global communications network, the EU will have to support the creation of an infrastructure for the 5G network shared between the US, China and Europe. The EU will also have to find mutually beneficial cooperation solutions with major IT companies and big data owners (Google, Facebook, IBM).

An ageing EU population will be one of the most serious problems for Europe. While emerging countries face overpopulation, the average age of the EU population will reach 45 by 2030. The EU will have to find creative solutions to partial depopulation,<sup>16</sup> avoiding the negative societal and security consequences associated with mass migration.

The enlargement of the UN Security Council will alleviate some revisionist tendencies. In turn, the federalization of the EU will give the Union a coherent and unitary voice on the international scene and will transform it into an indispensable global power pole.

A non-aggression pact between the US and China will be likely to bar the path of escalating military tensions which mark the bilateral relationship, either directly or by proxy. From this point of view, the EU will have to act as a balancing factor in security issues with potential for military escalation between the two great powers.

Actualizing this scenario also means avoiding the other two scenarios and discrete events associated with them. The EU must prevent the development of a solid alliance between China and Russia. Also, the democratization of China, at least on a medium term, is not desirable, as it will have not only positive, but also negative effects at the global level.

Although the premises of an US-China-EU trilateral cooperation are viewed differently by Americans, Chinese and Europeans, we believe that the dialogue and cooperation between the US, China and the EU is necessary for the stability of the international system. In the current transition of power, the EU will have to accompany and support the US, the transatlantic link being thus strengthened. From this point of view, the envisaged consolidation of European

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<sup>16</sup> These measures could include circular migration intended for seasonal workers, selective migration of the most well trained and talented, and special agreements with transit migration countries.

common defence must contribute to strengthening rather than undermining NATO-EU cooperation, so that the strategic partnership between the two international organizations becomes a truly overarching global security pillar.

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