

Foreword  
The Third Transition Age?

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## Foreword

# The Third Transition Age?

Intergovernmental organizations are expected, as a *modus operandi*, to stay in their narrowly defined domain. However, in times of utmost specialization, like ours, it is crucial that those organizations that are multidisciplinary, like the ones involved in the *Colloquia on Science Diplomacy MMXXII*, go beyond customary domain limitations and offer a wider perspective. This is a tall order, but one handled well by the entities contributing to the *Colloquia*.

By pulling together in this book the whole *Lectio Magistralis* series, the Science Diplomacy organizers are implicitly encouraging all of us to move out of our disciplinary trenches for the sake of exploring both the ‘bigger picture’ and the ‘longer perspective’. In that spirit, let me first foray into this Foreword with three clusters of speculative questions before offering my own perspective on how to navigate through these demanding times of global challenges and wicked problems.

- From a ‘bigger picture’ and a ‘longer perspective’ point of view, we should perceive the last three decades not just as free-standing developments in separate domains, but more holistically, as a major transition underway. Let us call it *The Third Transition* that is driving numerous components of our present economic and social system-of-systems from ‘The Old’ to ‘The New’. The Old system-of-systems has been mostly underpinned by Second Industrial Revolution industries, technologies and services, while the New one is relying mainly on those of the Third Industrial Revolution. While the Third Industrial Revolution has been enriching our economic and social system-of-systems with numberless positive outcomes, could it be that the Third Transition has lasting ramifications by picking winners and losers both within nations and in-between nations? What if no one can opt out of it and skip its knock-on effects?
- In the course of the Third Transition, the legacy economic, technological, scientific, social, political, ideological, societal, and cultural assets might not be eclipsed painlessly. Instead, the

transition may be more complex than promptly installing the New system-of-systems with a smooth change of guard in all those domains. We may be headed towards a volatile and protracted period stretching for one or two generations. Isn't it more appropriate to refer to it as an *age*, The Third Transition Age?

- Looking back in time and focusing on Europe and the US, could we posit that the previous, analogue transition age started four generations ago? Could it have been set underway from the 1880-1890s, triggered mainly by industries and technologies of the Second Industrial Revolution and stretching until the early 1950s? The Second Industrial Revolution, which itself emerged from the 1850-70s, marked unprecedented progress for nations and the world as a whole. While keeping this firmly in mind, we might suggest that the ups and downs of that period be interpreted not as freestanding dots, but as a holistic part and parcel of that transition. We might consider it a transition *continuum*: notwithstanding unparalleled technological and scientific progress, it was still defined by major economic and social upheavals and one continuous world war with a long 'ceasefire'. Moreover, the transition was characterized by left- and right-wing uprisings, civil wars and revolutions, and the breakup of six empires, culminating in communism, fascism, nazism, and barbaric mass annihilations carried out under the control of those radical ideologies – literally decimating the population of the countries affected. Shouldn't we classify this two-generation period, in-between the 1890s and early 1950s, as another mismanaged and degenerated transition age, the Second *Transition Age*?

### “This Time is Different”?

Three years after the onset of the Great Recession, in June 2011, in a courtesy call discussion with professor Klaus Schwab, the issue of recurring financial booms and busts came up (*ed. note*: Klaus Martin Schwab is a German economist, founder and executive chairman of the World Economic Forum). The 2009 book *This Time is Different: Eight Centuries of Financial Follies* by Carmen M. Reinhart and Kenneth S. Rogoff provided additional context for our discussion, besides the 2008 crisis at hand. Our organizations, the World Economic Forum and the Comprehensive Nuclear-Test-Ban Treaty Organization, were holding high-level conferences concurrently, in two adjacent, but well-separated wings of the Hofburg in Vienna. Coincidentally, both events explored how

to expand new frontiers of innovation, for economic progress and for international security regulations, respectively.

Based on my personal interest in international security boom-and-bust cycles, I raised a point during our talk. It was about another ‘folly’: major power arms races and wars unfolding with a recurring pattern, like economic boom and bust cycles. This phenomenon was treated with the same dismissive ‘this time is different’ attitude and was not getting the analytical attention it deserves, considering the collective tragedy and devastation it causes. The analogy might have resonated with him, particularly in the midst of the historical setting, since his reaction was: “Let’s publish an article about it”.

To my regret, that article did not get written. Even as of today I would not be in a position to write it. Why? My search has been expanding from identifying nuclear arms race boom-and-bust cycles into a far more complex issue that I cannot wrap my head around: at which conjuncture, and through which interaction, do discrete challenges or wicked problems, already grave on their own, cluster into a socio-economic-environmental ‘super bubble’, and eventually degenerate into a major conflagration? More importantly, how can we counteract the emergence of such a super bubble in an age of transition? How can we avoid rerunning the degenerated Second Transition Age?

## The Third Transition Age

It would be arbitrary to pinpoint one particular event in recent history to spot the beginning of the Third Transition Age. The search for its starting period will have to be even more US-centric than in the case of the Second Transition Age, because of the gravity shift away from Europe to the US and Asia in the second half of the 20<sup>th</sup> century. While the succeeding paragraphs describe the example of the US in how the Third Transition Age has been unfolding, the main trends of that age could be interpreted and applied wider, naturally *mutatis mutandis*.

After the economic and social malaise of the 1960s and the 1970s, one could observe the Reaganomics in the 1980s followed by the Clinton administration’s Rubinomics in the 1990s as responses to the crises. Those economic, taxation and deregulatory policies were paving the way for the rise of the New Economy. They enabled the consolidation of the nascent Third Industrial Revolution industries and technologies and opened the door for the Third Transition Age from the mid-1990s onward.

One indication of the velocity and the volatility of transition in the Third Transition Age is the huge swing of market capitalization towards New Economy companies, similarly to the Second Transition Age. As an example, by the time of the burst of the dot-com bubble in 2000, the market capitalization of New Economy companies in the US was several times higher than the market capitalization of the automobile industry. Within another two decades, the biggest New Economy companies – Apple, Alphabet, Amazon, Microsoft and Tesla – had taken over the top five market capitalization positions in the US (and they were among the world top six), surpassing the aggregate market capitalization value of the biggest companies in the auto, or the oil, or the traditional media industries, or in any other Second Industrial Revolution branch of the economy. At certain periods, these five companies on their own represented nearly one fourth of market capitalization of the top 500 largest US companies.

The reshuffle of the US capital markets meant a massive re-channeling of investments, even if part of that capital originated from derivatives and quantitative easing created by an increasingly inventive financial industry and central bank. Though the rearrangement of the economic landscape was not a zero-sum-game, there was a knock-on effect impacting Old Economy companies. In relative terms at least, it impacted not just their influx of capital, but represented a devaluation risk for their industrial assets, mineral and raw-material reserves, intellectual property and other intangible assets, and, last but not least, their human resources. The top four business sectors by annual revenue in the US – i.e. wholesale trade, manufacturing, retail trade and finance & insurance – have all been undergoing significant disruptions, and their traditional business model has been challenged in the course of the Third Transition Age.

No surprise, there was a definitive push back. The Old Economy was backed up by its protagonists not just in the economic sphere, but in the scientific-technological, political, ideological, social and cultural domains as well, starting a counter-offensive as early as the 1980s. Naturally, the emergence of Reaganomics was preceded from the 1960s onwards by segments of business, finances, politics and academia, promoting deregulation. Thus the roots of the counter-offensive can be traced back even to that period. But in the early 2000s, after the end of a decade-long economic expansion, gloves on both sides started to come off: the Old-versus-New line-up was permeating all spheres – economic, political, ideological, social and cultural – with an ever-intensifying polarization pitching one part of the nation diametrically

against another. The impact of this transition has not been absorbed by the political, financial and regulatory cushions underneath the Old Economy and the finance industry; when the impact has shown up as liabilities accrued, there has been a need for a last resort. The recessions during the Third Transition Age have been shorter and milder compared to the Second Transition Age, especially the 1880s-1910s leg of it. However, the 'Great Moderation', had an enormous price tag: the depression-free economy required massive central bank and costly government interventions and bailouts. Though there seemed to be no realistic alternative, it has been repeatedly proven to companies and banks, which were ready to take more and more risk, that the federal government would always be there as the last resort. As a result, the Third Transition Age has been accompanied by a two-orders-of-magnitude increase of national and household debts in the US, jointly reaching half of the annual global GDP.

The level of public and private over-indebtedness, unseen in modern peace times, has been characteristic not just of the US, but also of other G7 and G20 economies. This cluster of economic 'ticking bombs' is waiting for the fatal confluence of the economic, financial and debt crises potentially to go off together.

### Top-Down Meltdown or Double Bottom-up Polarization?

While a top-down economic depression has been, at least for the time being, prevented through unprecedented government interventions, a creeping, bottom-up socio-economic polarization has been steadily progressing during the Third Transition Age, both within nations and between nations. The earlier question remains pertinent: how not to mismanage that double bottom-up polarization; how not to maneuver ourselves collectively into an age similar to the degenerated Second Transition Age?

If we first look into how such a polarization has unfolded intra-nationally, we should keep in mind that while markets may rebound even after a severe recession within a year or two, people might not, perhaps even in a decade or in a generation. A recurring series of economic calamities, as happened over the last three decades, has left an indelible socio-psychological imprint on the mindset of individuals and in the collective psyche of the population. The Third Transition Age has left an unshakable conviction with those left behind by it that 'the winners take all'. It is strikingly similar to the 1880s-1910s period when in three decades altogether ten economic downturns, panics, recessions and depressions,

crushed ordinary people's existence and eventually radicalized the bottom income strata of societies.

Globalization became a central economic policy pillar in the US in the 1990s. Decision-makers and corporations were betting on knowledge-intensive segments of the economy and the primacy of finances. They let the Old Economy's industries and services (and the New Economy's assembly work) migrate to emerging economies. However, while those industries and services moved abroad, their workforce was left behind.

The deregulation that unfolded starting from the 1980s enabled Old Economy industries (and the New) to be compensated at the expense of federal and state income by lower or no taxes as well as at the expense of employees by keeping salaries lagging behind profit increases. These taxation and income policies lead to a relative decline of resources available for public health, education and infrastructure. They contributed to a gradual deterioration in income distribution ratios, affecting first the lower-middle class and later the middle class itself.

Deregulation meant additional exposure as consumers for those left behind. They were impacted by big corporations' market and price 'management' practices, especially in the 2020s.

This gradual comparative degradation of livelihoods, living standards, neighborhoods and cities, with all their societal, ideological and cultural consequences, has been further magnified and manipulated through social media, a Third Industrial Revolution innovation.

The Old-versus-New polarization, unlike the recessions of the era, has not encountered a bounce-back recovery. The other way around: it reached new heights in the aftermath of the Great Recession and culminated in social turbulence from the mid-2010s onwards. By now it is another burning fuse in search of an explosive, not just in the US, but in many other parts of the world.

The Third Transition Age has produced winners and those left behind also at the level of nations.

If we look upon the four decades elapsing from 1980, the overall picture emerging on the basis of GDP change reveals the winners and the nations lagging behind. In that same time period, while the world GDP doubled, the GDP of China grew more than thirty times, of the Republic of Korea ten times, of India nine times, of South Asia eight times, and of East Asia and the Pacific six times. Compared to the world average, the US has been 20%, Europe and Japan have been 50% below it, though in absolute numbers they started at a much higher level compared to the rest of the world. The Middle East and Latin America, as well as low

income countries, grew two to three times slower than the upper-middle-income and middle-income countries. The GDP growth of Russia was just one tenth of the world average and nearly 150 times less than China's during those same 40 years.

These numbers, while not revealing all the important nuances, speak for themselves: which regions and countries, lacking the necessary ingredients or determination, have not sufficiently embraced Third Industrial Revolution industries, technologies and services, or, as a deliberate choice, just doubled down on Second Industrial Revolution legacy industries, raw materials and services. In the context of an economic, financial or debt-crisis scenario, the countries lagging behind are the weakest peripheral links in a chain that is already severely strained. The risk they represent is further compounded by their own the Old-versus-New internal polarization.

Under a worst-case scenario, the risks of a top-down meltdown or a double bottom-up polarization might not remain isolated. Rather, they could merge and create a mutually reinforcing feedback loop in a super-bubble configuration leading potentially to a major conflagration.

The repeated references in this Foreword to the need of preventing the rerun of the degenerated Second Transition Age are missing two important points (though for historians there might be a third point: 'It's history' or 'History does not repeat itself').

The first is that a potential worldwide conflict like the one triggered by the burst of 1890s-1910s super bubble should be looked upon not from yesterday's but today's perspective. Alfred Nobel, the inventor of the dynamite, was convinced that the sheer destruction capacity of his invention would put an end to thinking about waging wars in the future. Hiram Maxim, the inventor of the machine gun, prophesized the same. Both of them were wrong, with tragic consequences. Russia, having started an unprovoked and unjustified war against Ukraine, unfortunately does not share Nobel's or Maxim's predictions.

Today's weapons are far more powerful than those of yesterday. We now live in a world where there are not just nearly 20.000 nuclear warheads more than 120 years ago (when there was none), but in a world where there is another 200.000 nuclear warheads' worth of plutonium and uranium in military and civilian stocks, around 200.000 tons of spent fuel scattered around in hundreds of nuclear installations, thousands of chemical plants and biological laboratories storing highly toxic dangerous substances.

The second point missed is that 120 years ago irreversible anthropogenic climate change leading potentially to human extinction



was not an imminent danger. Today it is. Nations do not have the luxury of wasting unprecedented resources and precious time on a mismanaged transition, let alone a global conflagration against the background that an estimated one tenth of the global GDP is required to move towards net-zero emissions by 2050 or one fifth of the global GDP could be lost by the same time in the absence of action.

### What's Next?

First, we should understand whether we are indeed going through the Third Transition Age, and if so, in which phase do we find ourselves? Using Second Transition Age analogies, are we in the early 1900s, when the transition degeneration and its mismanagement could still have been reversed? Or, are we in the 1930s, by analogy, when because of fanatical dictators and obsessed nations, the only remaining option was “Keep calm and carry on” and eventually to stand up against them?

Second, shouldn't we admit that we are trying to get our collective head around something that we have not faced in our lifetime, nor in that of our parents, grandparents and great grandparents? Even if our great-great-grandparents tried their best, the previous transition age was mismanaged, at least in the period when it was still reversible. Even if it could have been turned into a smooth transition, shouldn't we acknowledge that we are in a totally different league of complexity in the Third Transition Age because of nuclear weapons, given that one nuclear weapon alone can be an order of magnitude more devastating than all the explosives used in World War I and II? Shouldn't we fully grip the notion that at no time in known human history has a complexity like climate change had to be resolved, let alone climate change on the top of the other wicked problems we are now simultaneously facing?

Third, shouldn't we confess that we do not *yet* have the full set of theoretical, scientific, political, or just the common-sense knowledge and skills to manage the transition better this time? Yes, this is not a winning formula for any election or for any leader, but wouldn't it be a real wake-up call for all of us?

Fourth, shouldn't we reject the resuscitation of any '-ism' from the past or the emergence of future ones, because they turn out to be counterproductive short-cuts, eventually providing false answers to the dilemmas we today collectively face? Shouldn't we all move from ever more radical ideas to more moderation?

Fifth, shouldn't we repeat again and again that we do not need a magic and omnipotent supreme leader to manage the transition? Instead of over-concentrating on decision-making, we need the contrary: the right amount of collective, distributed and resilient systems of turning data into information, information into knowledge and knowledge into wisdom.

Sixth, shouldn't we most categorically reject any sort of 'beggar-thy-neighbor' policies or practices, wherein the misappropriation of other nations' land, people or wealth is pursued as a way out of the transition's challenges?

Seventh, shouldn't we, in addition to managing each and every particular global challenge or wicked problem we face, collectively focus on how to prevent the challenges and problems becoming intertwined through metastasis?

Eighth, shouldn't we eliminate within each and every organization the 'Hofburg' walls, so that we stand not just under one roof, but in the same "multidisciplinary room"?

Lastly, shouldn't we make sure that this time global challenges and wicked problems do not degenerate into the ultimate socio-economic *tabula rasa*, an outcome totally repugnant and morally unacceptable, as witnessed in the Second Transition Age and so many times in the centuries before?

I hope that the *Lectio Magistralis* series, thanks to the insights provided by the organizations and academia behind it, will bring us closer to these aspirations.

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of the Comprehensive Nuclear-Test-Ban Treaty Organization

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