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Artificial Intelligence and Political Science

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Abstract

The future of representative democracy is uncertain. The gradual consolidation of its institutions, procedures, cultural and ideological references, was directly congruent with the evolution of the industrial age economic and social compound. But this historical social pattern is melting down. Fordism's "mass production for mass consumption" – staged by mass media – was the main paradigm of last century's political systems. Vertically structured power nodes linked into chains of "intermediate bodies": trade unions, business groups, political parties and parliaments, hierarchical judicial systems, governmental departments and agencies, military and police forces, one-way media outlets... Big Labor, Big Business, Big Government and Big Media. Now, in its race for survival, the Fordist model has hit an environmental, economic and social wall, creating the possibility of a new paradigm. "Global Fordism," transnational constraints and threats, ubiquitous information and disinformation, new disruptive technologies, permanent innovation, and the emergence of cyberspace as a new "territorial" reference, is accelerating an epochal social and political transformation. Customized networked production for customized network consumption – under a cloud of interactive personalized communications – is at the core of the expansion of a new "digital" social pattern.

What are the implications for our decades old – sometimes centuries old – political references and systems? Traditional vertical institutions are now fighting for survival, while throngs of individual and ad hoc collective actors – horizontally linked by constant intercommunications – are busily trying to assert themselves through new forms of social organization. The old world counteroffensive tries to reestablish control through different forms of "techno-totalitarianism," "illiberal democracy," or even some mild "liberal paternalism." While the new world thrives on decentralization, territorial "clusters," ephemeral "movements," entrepreneurial disruption, and "start-up politics" that try to reconcile horizontally defined goals with vertical decision-making. More ominous: many dream of an Artificial Intelligence mechanism as a legitimate authority, a non-human guarantor of last resort, that could deliver a "neutral," "common good," and political power structure.

In order to analyze – and act upon – this great civilizational revolution, we need new conceptual tools. The present political and social sciences are wanting. They were developed in close symbiosis with industrial era mechanical "hard" sciences. This paper tries to contribute to the effort of building new foundations for the "digital" 21st century political and social sciences by tapping into cognitive sciences and AI insights – particularly "neural networks" research – as a metaphor for understanding contemporary mutations in social history. Looking at human society's dynamics as a self-organizing "recurrent neural network," in order to apprehend the path and challenges of future of political power, government and governance.

Artificial Intelligence and Political Science

Contemporary “political science” – an evolution of what Enlightenment and 19th century philosophers called “political economy” at the beginning of the industrial age – is facing a defining moment. The challenge is how to build new foundations and new intellectual and scientific tools more suited for analyzing the present social, economic, and political upheaval. It is a very tall order that can only be pursued through various parallel and contradictory pathways. This paper tries to explore Artificial Intelligence (AI) insights as a metaphor for understanding mutations in social history – particularly, through the earliest intuitions developed during the last three decades by Henri Atlan in his works on “neuron-like automata networks,” and the emergence of “intentional procedures” in “self-organizing neural networks.”¹

Bewailing Weepers of the “International Liberal Order”

There is considerable angst about the state and future of representative democracy and the so-called “international liberal order.” Throughout the Western world, academics, politicians, think-tankers, editorialists and/or consultants are lamenting the decay of democratic regimes and the demise of the post-WWII US-guaranteed “world order.” Reasons to worry are abound, seen through events such as the rise of anti-systemic populist movements, the growing appeal enjoyed by authoritarian governments solutions (from “illiberal democracy” to China’s Party-state), the disempowerment of political and economic multilateral institutions, the aggressive “unilateralism” of Donald Trump, and the resurgence of confrontational geopolitics. However, most of the hand-wringing ends up in calls to “save” the peculiar – and threatened – half-century old Western way of politics. As if it was the ultimate and only social model capable of preserving basic individual freedoms, the rule of law, accountable government and equitable economic prosperity. A sort of pessimistic “end of history” outlook, shared by a rich old-boys club dwelling on “it-was-better-before.”

There are certainly mitigating circumstances for the re-emergence of such a Spenglerian² mood – incidentally, a recurrent and depressing belief ingrained in European and North American cultures. We live in an era of radical and rapid change, at least as disruptive as the second industrial revolution at the beginning of the 20th century. From Ford to Google, mass production for mass consumption – enabled by mass communications – has swept the United States then Europe, Japan-the Asian ‘Tigers’, and then most of the world after the end of the Cold War. But this global social compound has hit an environmental breaking point, as well as rigid and shrinking limits on solvable demand and productivity gains³. The deep 2008 financial crisis shattered the conviction that massive private and public indebtedness could still be a one-size-fits-all lifeline, even temporarily. Salvation today, relies in the advent of a successor social-economic paradigm built around different approaches on how to understand and operate the so-called new

1. ATLAN H. & LOUZON Y. (2010): “Emergence of Intentional Procedures in Self-Organizing Neural Networks”, In: Carsetti A. (ed.), *Causality, Meaningful Complexity and Embodied Cognition*, Theory and Decision Library A 46, Springer Sciences+Business Media B.V., 2010; ATLAN H. (1998), “Intentional self-organization. Emergence and reduction. Towards a physical theory of intentionality”, Thesis Eleven 52:5-34, Sage, Stockholm 1998;

2. SPENGLER, O (1991): *The Decline of the West*, Oxford University Press, US, 1991. (First published in 1918).

3. VALLADÃO, A. G. A. (2014): “Masters of the Algorithms. The Geopolitics of the New Digital Economy from Ford to Google”, Wider Atlantic Paper Series, The German Marshall Fund of the United States, Washington, 2014.

www.gmfus.org/wp-content/blogs.dir/1/files/mf/1399061479Valladao_MastersoftheAlgorithms_Apr14_web.pdf

“digital” technologies. Customized networked production for customized networked consumption – thriving under a “cloud” of interactive tailor-made or personalized communications – is at the heart of what could evolve, gradually or chaotically, into a new “stable” social “pattern.” And there is a pervasive feeling that such a profound metamorphosis of human life, and the way humans live their lives, will have a deep impact on political power structures and all traditional regulatory frameworks – at local, national and transnational levels.

In fact, economists, sociologists and political scientists alike, struggle to understand the meltdown of a historically consolidated process of production, consumption and communication that still provides the references, standards and benchmarks for all modern social sciences. Established ideological viewpoints, time-tested hypotheses about social, economic or political behavior, as well as traditional intellectual tools of measurement and assessments, seem overtaken by the new realities. Lacking a robust flow of fully innovatory inputs from social sciences, the politically influential Western academia and think tanks are losing influence to social media’s “post-truth” activism. They try to compensate by selling “business as usual” formulas as urgent prescriptions, wrapped in Cassandra-like arguments – an alarmism shared by many established political parties and NGOs. No wonder that politicians and high-officials, searching for clues for solving intractable and undecipherable new problems, often complain about being drowned in an ocean of contradictory opinions and recipes: “We don’t need ‘problematics’, we want ‘solutionatics’!”

An AI Re-Wiring of “Political Economy”

Social sciences – from Enlightenment to our time – emerged from the industrial age. Their separation into many disciplines and their increasing sophistication – thanks to the intellectual and physical contributions from the “scientific revolution” – were embedded into the stream of the successive avatars of this civilizational paradigm. This form of industrial archetype was so disruptive and powerful that it transformed the whole life of humankind. It was so long lasting that its economic, social, and political operating codes ended up being considered as an insuperable material and mental horizon. Now, its capacity to regenerate itself as the main universal social matrix, and to maintain at once its basic codes, is rapidly dwindling. This endgame is wreaking havoc on all industrial era political systems and on the elemental references of political and other modern social sciences. But the so-called “digital age” is opening new paths. This moment of epochal transition, and the concepts for understanding it have become more and more dependent on the use of fast-evolving new technologies and scientific knowledge. Today, AI is at the core of the contemporary scientific revolution. Political protagonists, ideologues and scientists cannot ignore its new tools and conceptual paradigms.

Obviously, this paper’s very rough attempt to use AI procedures⁴ to re-wire the corpus of “political economy” would not have been possible before the breakdown of the 20th century mass production for mass consumption logic, and the development – and present practical applications – of the new digital technologies. The whole social compact, as well as scientific research and its “marketable” technological fall-outs, are in rapid flux – looking more like a Brownian motion than a tidy straight line. The pace is so “disruptive” and unpredictable that the idea of a purposeful historical direction towards an a priori future “order” has lost its functional relevance. Tomorrow’s dominant pattern of a global “political economy” – or, maybe, a fragmented landscape – cannot be predicted (nor “decided”) by an individual or a collective political, social or intellectual authority. We live in an increasingly interdependent and interconnected world

4. For a clear crash course on the functioning of neural networks: NIELSEN M. (2013): Neural Networks and Deep Learning. e-book, November 25th 2013. <http://neuralnetworksanddeeplearning.com/>

where human society is shaping into an all-encompassing “neural network”-like compound. Understanding the internal mechanisms of social and individual interactions that “produce” this concrete network and its political results would be a very promising path for “new” political scientists. As Louzon and Atlan would put it (in a very different context): “We propose a mechanism through which goals and their achievement in goal-directed actions can be emerging properties of self-organizing networks, not initially endowed with intentionality.”⁵

This mechanism is conceived as the combination of a non-supervised feed-forward “learning network” with a “Recurrent Neural Network” (RNN), where the first constitutes the link between the final and initial states of the latter. A thorough analysis of this model is well beyond the purpose of this paper (and of its author’s competence). The basic idea is that “the input to the network is the steady state of the RNN,” and that “the output of the feed-forward learning network is the initial state of the RNN.”⁶ These reiterative inputs/outputs loops, and their interactions with external constraining (or facilitating) circumstances, will tend to create recognizable stable “patterns” (or “an evolving set of goals”). Which in turn, will constitute new inputs providing both stability and “newness” for the whole neural mechanism.

Applied to social sciences, this vision has the advantage of bypassing the ideological bias of an external “mentalist” intentionality⁷: the fallacy of the omnipotent decision-maker who can predict an unknown political outcome by pre-defining it as an intentional goal that can be reached through “political will” and the implementation of a strategy conceived as a causal chain of actions. In reality, this kind of illusion either ends up with a significantly non-forecasted outcome. Alternatively, the defined “goal” was already a well-known outcome that could be pursued as a relatively simple repetitive process in a distinctly stable “political economy” environment. Ditching this sort of delusion could be a good start for political scientists in order to be more in tune with the present rapidly moving and unpredictable political and economic turmoil.

Social Change as a Recurrent Neural Network

If humankind is going through an uncertain transition from an old to a new social ordainment, the challenge is to try to understand the omens of this supposed emerging new “order.” Particularly, how our ways of producing, consuming and communicating, as well as our local, national and transnational power structures, are impacted by this metamorphosis. And – perhaps – what can be done about it.

Unfolding the AI metaphor: a social “order” can be defined as a “pattern” that emerges from a network of interactions between great numbers of diverse “actors” – from the behavior of each individual to the influence of enduring institutions and organized groups of people and ideas. Actors, of course, are dynamic and polymorphic, which implies that the network itself is dynamical and prone to change. In that context, a “stable pattern” can be considered as just a “moment” in history – more or less sustainable through time – on these never-ending social interplays⁸. But succeeding historical “patterns” are not static realities. Each one can also be apprehended as a momentarily stable and resilient networked “core,” interconnected with an array of less powerful, unstable and peripheral “margins.” These complex iterative interconnections, constantly adapting to external constraints, produce incremental changes in the functioning of the network.

5. LOUZON Y. & ATLAN H.(2007): “The emergence of goals in a self-organizing network: A non-mentalist model of intentional actions”, *Neural Networks*, Volume 20, Issue 2, Elsevier March 2007.

6. ATLAN H. & LOUZON Y. (2010), *op.cit.*

7. *Ibidum*

8. A concept artistically well captured by Lana and Lilly Wachowski with their 1999 prescient Oscar-winning picture “The Matrix”.

Eventually, peripheral instability makes its way to the heart of the stable core, breeding a new cycle of disruptive interactions that threaten to dissolve the whole historical pattern, which creates the conditions for the emergence of a new one. The speed of these “revolutions” is linked to: (a) the relative strength and power of each actor (their “weight” or “bias” in neural network “speak”), (b) the pace (latency) of communications between protagonists, and (c) the actual historical coverage and density of the network.

This modelization of social change generates the need for humongous amounts of data. The more so, if one dives deeper into the complexity and the operation of the social network’s “stable core.” In fact, this “core” can also be considered a “pattern” in itself, connected to a great number of internal “sub-patterns,” with their individual or collectively organized inputs. Which, in turn, could be seen as functioning as another “layer” of interconnected cores and sub-patterns – a web of connection loops, hierarchical or not, rested on the behavior of each individual person. Together, the sum of these individuals encompasses the whole humankind in its actual historical circumstances (the “first layer,” or “initial state,” of our network metaphor). How these initial “intentional” individual behaviors are explained or predetermined – or, for that matter, any exegesis of “free will” – are far beyond the scope of this paper⁹. In any case, contemporary moral philosophy is facing a new challenge coming from the relentless expansion of universal interconnectedness (and its shrinking latency). A world driven by ubiquitous social media, where mostly everybody has immediate access to extremely wide – or very focused – audiences, and can instantly challenge every opinion, scientific expression, moral precept, or even the challenge itself.

Actually, this “post-truth” environment tends to dissolve any long-term stable moral authority and even the mere idea of massively shared common values, “general interest” or “common good” (be they founded on Religion, Reason or even Habermasian “communicative rationality”¹⁰). Unhinged and instant intercommunication between masses of individuals seriously undermine the centuries-old quest for “moral” authorities or socially “neutral” criteria for founding the principles of Justice, which are at the core of at least the Western civilization’s political thinking. Paradoxically, present social media usage tends to enclose personal (and affinity groups) within deep-seated certainties and opinions, generating widespread intolerance. This brand new social environment does not favor the emergence of legitimate above-the-fray “arbiters,” be they religious, political or intellectual authorities (personalities or institutions), nor of “rational” independent procedures capable of building a collective consensus. Significantly, there is today a growing enthusiasm for distributed computing systems (“blockchains”). Supporters dream of a new tech solution that – supposedly – would produce decentralized consensus and universal social “trust” without the need of pre-determined goals, moral or political “values”... or trusted institutional authorities¹¹.

Neural Modelization of Social Sciences

In spite of these philosophical uncertainties, the neural model should be able to analyze the different “patterns” and their diverse connections and biases operating through the social network’s mechanisms: “hardened” cultural references or ideological categories such as “class” or “nation” – and also families,

9. H. Atlan makes the case that “the conscious will to trigger an action does not necessarily precede the action”, and that “a voluntary action is triggered by some unconscious activity and the following awareness is interpreted as its cause”. The initial set of “instinctual goals” of his recurrent neural network could be conceived as the result of a long-term evolutionary process driven by selection for survival. ATLAN H. & LOUZON Y (2007), op. cit. The French philosopher Pierre Manent, from a liberal and catholic background, has thoroughly rejected these “Spinozian” premises, which he sees as the main cause of the present breakdown of the modern State and of any legitimate commanding authority. Cf. MANENT P. (2018): *La loi naturelle et les droits de l’homme*, Presses Universitaires de France (PUF), Paris, 2018.

10. HABERMAS J. (1999): *Moral Consciousness and Communicative Action*, MIT Press, Cambridge Mass. 1999

11. For an up-to-date understanding of these new issues: one can follow the work of the Institute for Blockchain Studies, founded by Melanie Swan, at the Philosophy Department, Purdue University, West Lafayette, USA.

tribes, associations, political parties, or political, judicial and economic organisms (local, national, international, transnational...). The mathematical concepts of "attractor" and "basin of attraction" could be useful tools for pattern modelization in AI simulations proper for Political Science. Provided that these concepts are included in the feed-forward/feedback interactions, and hence susceptible to mutate, to be challenged by novel emerging "attractors" and even to disappear. But the fact is that, today, these interdependent and gigantic aggregates of social, economic and political data cannot be treated as an integrated dynamic simulation without Artificial Intelligence software and procedures – and, of course, the indispensable hardware infrastructure for calculus and data collection.

In fact, we are not in a tabula rasa situation: all present social patterns and sub-patterns (with their "attractors and "basins of attraction") have already historical "memories" of past goals that can be attained, over and over again, by known paths (or cycles of actions). Contrary to an experimental simulation – where the researcher holds a sort of God-like power over his brainchild – the real world of human society has no omnipotent "outside" actor that can decide on a set of initial unalterable "instinctual," "vital," or "external pre-defined" goals that can be coded in an attractor state and kept in the system's memory¹². Moreover, by definition, nobody has the power to "stop" the cycle of dynamic iterations. These more enduring "social algorithms" are already wired-in by history and cannot be imposed from scratch. Political scientists can only try to understand, analyze and venture into "modelizing." For that matter, an axiomatic first step can be conceived: each pattern is "wired" to act in a survival mode by selecting its reactions to inputs coming from its network of connections. "Favoring" flows that enhance the pattern's inner-strength and "neutralizing" those that weaken it. This postulate has the advantage of complying with the self-organizing feature of the "social" neural network and its attractors, while acknowledging the unpreventable emergence of "newness" as a concrete individual and institutional decision-making capability.

Today, the challenge is to try to understand the momentous transition between an old "order" and a world where a new stable state is anything but a foregone inference. The activity generated by the present "stable" sub-patterns has certainly a direct impact on the output of the whole social neuro network. Some of them have been extremely resilient for a long time (juridical systems, state bureaucracies, national governments, representative parties, military and law enforcement forces, basic economic transactions...). Nevertheless, even these powerful and elemental "attractors" are threatened by the speed of change: a rapid densification of intercommunications that by-pass their capacity to bring social interactions into the fold of their "basins of attraction." In fact, the variations in the input/output of the recurrent network process are so massive that they are leading to the emergence of new poles of attraction, which in turn are "draining" the social basins of the traditional ones. Old patterns, benefiting from hard-wired and historically consolidated networks of interactions, are now fighting for survival. While myriads of actors, newly linked by the universalization of communications, are busy trying to remove all obstacles to their emergence and power growth.

When the industrial age hits an unbreachable wall

Very schematically: this epochal transformation translated into political science's categories, pitches embattled industrial-age established institutional attractors against swarms of digital age permanently mutating attractors. The Fordist 20th Century paradigm – mass production for mass consumption – was the foundation on which mature industrial era basic organizations could forge their social hegemony: Big Labor, Big Business, Big Government and Big Media. A structure of power nodes vertically linked

12. ATLAN H. & LOUZON Y. (2007), op. cit.

into chains of “intermediate bodies” – trade unions, business groups, political parties and parliaments, hierarchical judicial systems, governmental departments and agencies, vertical one-way media outlets. . . . These patterns and sub-patterns were developed and consolidated in the framework of the contemporary constitutional territorial nation-state (be it democratic or authoritarian). The defeat of totalitarian forms of industrial age patterns – Nazism, Fascism and later Soviet “Real Socialism” – opened the way for different modes of national power-balance between business and labor, arbitrated and controlled by Government, and staged by mass media plurality.

Endless transnational expansion was the ineludible requisite for the survival of the economic foundations of this way of life. The earnest opening of national markets for international trade and finance, supported by more encompassing international regulatory systems and institutions (the so-called “liberal order”), gave a new lease of life to “the mass production for mass consumption” paradigm¹³. The logarithmic growth¹⁴ of international trade saved Fordism for a while. Fragmentation and globalization was the price to be paid for keeping Fordism alive. However, the cost of this metamorphosis into “international Fordism” and later “global Fordism,” was a substantial challenge to the capacity of effective control by national sovereign authorities. Strengthening the international “governance” institutions (the world “liberal order” warranted by the US superpower), was the ad hoc answer to the globalization of the old national-centered order. But in the absence of any credible perspective of a global “government,” capable of “managing” these very rapid and forceful transitions, this transnational institutional layer, and its national “stockholders” face the same threats to their legitimacy and to their already shaky authority and policy-making processes.

As a matter of fact, the resilient, chameleonic and very successful 20th century socio-economic compound hit a civilizational brick wall. The planet’s climate and health cannot sustain anymore the need for massive industrial growth at any cost. Furthermore, solvable demand is reaching a plateau. Consumption growth in overequipped rich countries is slowing down, despite US dynamism. Concurrently, appetite for mass-produced goods is dwindling while preference for customized services is growing. In addition, emerging and developing countries are following an analogous track. True, huge local income inequalities still feed basic unfulfilled dreams of mass consumption of goods. Solely those aspirations cannot be satisfied without strong and sustainable consumer- and business- friendly institutional ecosystems. Yet, big emerging markets’ clientelistic and rent-seeking elites seem allergic to any significant market liberalization and comprehensive economic competition (internal and external) that could threaten their vested interests¹⁵.

These social and cultural impediments have also a strong impact on the other side of the mass-production equation: productivity. No doubt, huge pockets of waste and inefficiencies still exist in present value-chains that can be tackled by the use of AI “machine learning” technologies. Nevertheless, buying, off-the-shelf, this new kind of “general purpose” technology is absolutely not enough. A new productivity boom will not materialize without entrepreneurs that invent new business models, workers that develop new skills and policy makers that update rules and regulations¹⁶. And only very few socio-economic “clusters,” situated in the more sophisticated markets on the planet, can master and combine these innovative skills – which are boosting “new economy” solutions at the expense of global Fordism’s dominance.

13. VALLADÃO A. G. A. (2014): op. cit.

14. ORTIZ-OSPINA E. & ROSER M. (2018) - «International Trade», published online at OurWorldInData.org. <https://ourworldindata.org/international-trade>

15. VALLADÃO A. G. A. (2016), “Climbing the Global Digital Ladder – Latin America’s Inescapable Trial”, Policy Paper PP-16/09, OCP Policy Center, June 2016.

16. BRYNJOLSSON E. (2018): “Machine learning will be the engine of global growth”, Opinion, Financial Times, July 26, 2018. Also: BRYNJOLSSON E. & McAfee A. (2014): *The Second Machine Age*, W. W. Norton & Company, New York, USA.

While heading into an environmental and “political economy” dead-end, the widening of last century’s social-economic model had to cope with at least two main consequences: a) a perilous broadening of deep social and territorial inequalities; b) the same new digital technologies that were used to keep the pattern alive (particularly the harnessing of global Internet), are begetting alternative ways of producing, consuming and communicating. A double-whammy, that is deeply threatening the authority and legitimacy of the industrial age political and social institutions, perfected and cemented during the last six decades.

The Slow Demise of Fordism’s Political Institutions

Fundamentally, the social consensus around the power of the modern territorial nation-state has rested on its institutional capabilities to redistribute resources to a geographically enclosed constituency and to ensure its security. Many new trends have undermined these basic missions: global finance and production chains networks, transnational fiscal constraints, threats that ignore sovereign borders (transnational crime, terrorism, “hybrid wars,” mass migrations or climate change), ungovernable ubiquitous information and disinformation, universal access to any cultural references, fads and dreams... And last but not least, the pervasive new power of an unruly political, social, economic and security “territory”: cyberspace. The growing loss of “governance” tools is coupled with the transnational fragmentation of economic growth and the emergence of new production/consumption paradigms based on permanent innovation and powerful new technological instruments. This trend is generating huge social disparities (domestically and internationally), but it’s not the only widening gap between the “1%” and the “Rest.” The more sophisticated and value-added economic activities are increasingly concentrated in a few urban “clusters,” thriving amid downtrodden regions and poor neighborhoods. Local affluent hubs are increasingly interconnected, and can develop more autonomous decision-making capacities vis-à-vis the central national authorities.

The “fourth” industrial revolution’s deep social and territorial inequalities are hardening the social divisions between losers and winners. National governments are losing their basic financial and institutional functions fast: the purposeful capture and allocation of national wealth, and the upkeep of their monopoly over the use of force. However, the collapse of trust in government does not spare the other main “sub-patterns” of the industrial age – parliaments, political parties and trade unions. The strength of these “intermediate bodies” were closely linked to Fordism: huge concentrations of people working and living in standardized environments that could share common life aspirations and interests. And that could be reached, collectively, by mass media technology (radio broadcasting, film, industrial music and TV), for political propaganda or economic advertisement. These “masses” – thanks to scientific use of social statistics and sociological research – could be segmented into “categories” and “classes,” which in turn could be “represented” by ideologically-motivated political parties, general or industrial unionism to protect labor’s working conditions, business confederations...

The current decomposition of production chains, the individualization of work, customized consumption and personalized interactive social media, have fragmented the socio-political categories. Defining a consensual national “common good” or a “best regime” worth defending and living for – or organizing lasting “categorical” interests – is getting harder by the day (let alone “selling” shared global goals). The “intermediate bodies” are being “disintermediated,” as in many other human activities. “We the People” is being replaced by throngs of single “people” empowered by new technologies to express and support their individual opinions and preferences – or limited affinity groups’ causes. These single actors openly question the capacity of “representatives” to define and solve their actual personal problems.

It is crucial to understand that this new reality could materialize only through the material emergence of these self-conscious individuals with their new ways of life and communications tools. And that this development is a non-programmed consequence of Fordism's struggle to survive. Widespread disintermediation is not a result of authoritative "ideas" promoted by political philosophers or ideology-driven leaders. The "mass production for mass consumption" hard-wired and (until recently) fairly stable social "basins of attraction" – using the language of our recurrent neural network (RNN) metaphor – have been losing their capacity to keep reproducing their geographical and social vertical patterns of interactions. Their established and tried survival algorithms are mutating and slowly disintegrating. Moreover, they struggle to influence and control the proliferating web of more horizontal new interconnections. The key "attractors" do not "attract" as before, which translates into a legitimacy and authority drain.

"Techno-Totalitarianism" and "Illiberal Democracy"

The 20th century social order – with its "sub-patterns" and "attractors" – is under siege. Peripheral instability is growing into a systemic threat, making its way to the "core" of the traditional encompassing "stable pattern." New phenomena, closely interlinked by nearly universal interactive communications, are emerging as possible blueprints of different stable future attractors: local and more autonomous territorial sub-nationals institutions and practices; powerful affluent and innovative urban clusters networking across borders; "shared economy" tools and usages; horizontal and rapidly mutating political "movements"; globalized digital private "platforms"; disruptive "start-up" companies; massive and nearly instantaneous "mobilizations" of public opinion through social media; crowdsourcing and permanent online discussion networks; deep modifications in patterns of consumption and production; radical changes in the nature of work; privatization of space exploration... The list can be endless. Vertical top-down institutions (governmental administrative apparatus, majority rule, party discipline...) are less and less suitable to manage this rising tide of social complexity.¹⁷ Old world "analogical" control of information strives to compete with new world "digital" information-sharing and so-called "collective intelligence."

These trends will inevitably get established social and political attractors into survival gear. They do recognize that the most important feature disrupting their "core" patterns is the explosive widening of the planet's horizontal intercommunications network. Hence, their priority is to cut out, control, or "influence" these "lawless" flows of data and information. In our RNN metaphor, it means targeting the feed-forward algorithms that are susceptible to lead to alternative and novel attractors and patterns. This counteroffensive follows a wide range of tracks, from a harsh form of "techno-totalitarianism" to a seemingly mild "liberal paternalism" – and many avatars in between. Authoritarian States proclaim their "right" – and "duty" – to censure and tightly control their "national" portion of the Internet, and to suffocate non-obedient mass media. This defensive strategy – to dictate what is "good or bad" information – is complemented by an offensive tactic: deliberate manipulation of social media. "Trolls," "hackers," or other cyber-weapons are deployed in order to confuse and isolate any perceived individual or collective dissidence – using "fake news," character assassination, plain lies, and even phony political demonstrations. In addition, the whole package is imposed by the traditional threat of crude physical punishment for those who don't toe the line.

Russia's autocratic government is well advanced in these forms of sophisticated information control – including direct interference in democratic countries' political processes. However, the present Chinese institutional authorities are far ahead on the use of digital technologies for their survival strategy. Artificial Intelligence tools (Big Data, facial recognition, search algorithms) are being operationalized in order to

17. HELBING D. et al. (2017): "Will Democracy Survive Big Data and Artificial Intelligence?", Scientific American Magazine, February 25, 2017.

follow all ordinary aspects of each citizen's behavior, and to distribute individualized "Social Credits" which determine the conditions (punishment or advantages) of a single person's everyday life¹⁸. George Orwell's "Big Brother" is child's play. And the next dream is to develop AI-powered prototypes to be used in diplomacy¹⁹...

In both countries, this forceful drive to use "new tech" to reestablish the strict verticality of classical political national power can be sustained – for the time being – by still dominant domestic industrial mass production structures. Yet, the Fordist paradigm is inevitably losing its predominance. Increasingly, absolute totalitarian power has to be exerted in order to squeeze the "horizontal" and permanently innovative new digital economy into the old vertical production logic. No doubt, this strategy's crucial weapons are the so-called "Great Firewall," coupled with the ubiquitous domestic censorship of the Internet. Nevertheless, political control of new information technologies has limits: it stifles creative "outside-the-box" developments – crucial to stay in the digital race – and it encourages disruptive dissident research. What AI can do, AI can undo. The consequences are either the growth of violent repression and confrontations (internal and external), or a tense meltdown of the traditional power structures – or both²⁰, which is not the best ecosystem for their survival.

In another league, developing countries with huge inequalities and poor populations are also confronted with this autocratic aporia. National political dominance is still overwhelmingly dependent on agriculture and mining – modes of production that are determined either by global markets or by very inefficient local conditions. Developing profitable "niches" inside industrial global chains of value and tapping the innovation potentialities of large young populations could certainly represent a way forward on "the process of emerging." Yet, rent-seeking elites cannot secure their survival on incipient industrialization processes without facilitating domestic competition, which can threaten their power base. And, for the same reason, they also lack the will and the means to upgrade to high-tech economics. Ultimately, there is no other solution for protecting their vested interests, except mild or harsh forms of authoritarianism. A path leading to another round of "the development of underdevelopment" feeds dangerous domestic and external convulsions.

Back to the "Good Old Days": A Political Dead-End.

Democratic institutions of technologically advanced industrialized states are faced with subtler challenges. The transition from Fordism to the networked digital age has already taken its toll. Territorial and social inequalities are growing. Trust in central government institutions and traditional vertical political and social representation is dwindling fast. The "middle class" – the stability cushion of the second half of last century's national democratic regimes – has split into "winners" (mostly hyper-connected urban "new economy" professionals and their "basins of attraction") and "losers" (toilers in low-tech "rust" industries, and small farmers or Main Street service providers in decadent small towns, rural areas and down-trodden

18. For a quick roundup of these AI-induced penalties and rewards, see MA A. (2018): "China has started ranking citizens with a creepy 'social credit' system — here's what you can do wrong, and the embarrassing, demeaning ways they can punish you", Business Insider France, April 8, 2018.

<http://www.businessinsider.fr/us/china-social-credit-system-punishments-and-rewards-explained-2018-4/>

19. CHEN S. (2018): "Artificial intelligence, immune to fear or favor, is helping to make China's foreign policy", South China Morning Post, July 13, 2018.

<https://m.scmp.com/news/china/society/article/2157223/artificial-intelligence-immune-fear-or-favour-helping-make-chinas>

20. "China drives a (disruptive) heavy Schumpeterian machine with a heavy foot on the brakes". APPADURAI A. (2018), "The ghost of Schumpeter: failure, risk and innovation in the digital age", conference at Sciences Po Paris, March 29, 2018.

<https://www.sciencespo.fr/evenements/?event=the-ghost-of-schumpeter-failure-risk-and-innovation-in-the-digital-era>

urban neighborhoods). The first are busy interconnecting and “disintermediating” everything, feeling at ease with “globalization” and “disruption.” The second are longing for re-imagined “good old times”: well paid standard factory jobs, mass consumption, strong national GDP growth, and shared “identities” and cultural references celebrated by mass media. The lot being warranted by robust homeland borders and a protective “welfare state,” both delivered by stable and predictable political processes and governmental institutions.

For that matter, political and social polarization is becoming acute. All mass production-era “attractors” are slowly melting down. Classical political parties, business corporatist groups, as well as assembly lines and public servants trades unions are being superseded by ad hoc political and social “movements” that take advantage of social media networks to rally mostly non-professional politicians. Most (but not all) of them combine allegiance to a charismatic leader and celebration of bottom-up instruments to set up their political or social objectives. These new political creatures can clearly be found in most European countries and also in the United States – the recent and most spectacular antithetical examples being Trump’s Twitter-fed “Make America Great Again” or “#Me Too”. As most of these movements thrive outside, or at the far ends, of the traditional political spectrum, they seriously debilitate established democratic procedures, traditional representative structures and the perceived legitimacy of Legislative and Executive branches of government.

In order to endure, the democratic Fordist political compound is trying to react. Two contrasting tracks are being followed. One tries to resist by throwing money at the problems: subsidizing the “old economy” and spinning the wheel of the welfare state. The means is fast-growing public indebtedness, and the goal is to appease the “losers” without stifling the creativity of the “winners.” A scarcely sustainable strategy, confronted with the great wall of debt. The other, tries to harness the anger and nostalgia of the “losers” to dramatically reinforce the power of the Executive branch over the already under stress “intermediate bodies” – parliaments, opposition and even pro-government parties, Central Banks, independent mass media and, more ominous, the Judiciary. To “get back” the nation’s sovereignty – supposedly “wasted” by supra-national rules and institutions – is the basic ideological tenet to try to convince those who dream of 1950-1960’s prosperity and who yearn for a protected, ethnically (or religiously) “pure” national community, fenced inside its historical borders.

This blunt authoritarian “disintermediation,” which often takes the form of constitutional changes, is designed to entrench the central administration’s supremacy over all other branches of government. A political offensive that despises democratic separation of powers, “checks and balances,” fair and transparent electoral systems, judges’ autonomy, media independence, the rights of minorities... In Europe and the US, “nationalism,” “populism” and “illiberal democracy” are on the rise. Yet, the Fordist national State cannot be resurrected. “Illiberal” governments can arise from this period of crisis, and even survive with some degree of internal consensus, as long as they can rely on the waning vertical industrial model to deliver a good enough level of socially acceptable well-being to a significant share of their domestic constituencies. But their mere “illiberalism” hinders their countries’ capacities to adapt to the fast dominant global interconnected services-oriented “customized production for customized consumption.” A new way of life, grounded on permanent innovation, free-flow of information, automation, decentralized horizontal initiatives... In fact, these authoritarian trends are a reflection of a blocked social situation that generates further political polarization, begetting social and economic dead-ends.

France's Experiment with "Start-up Politics"

However, the democratic North Atlantic "pattern" is also generating a new trial run (or, metaphorically, a batch of new algorithms working through the whole social neural network): France's Emmanuel Macron presidency. A charismatic young leader, with no previous electoral experience, was elected President thanks to his leadership over a small team of assistants that could master "old politics" constraints together with "digital society" arcana. His La République en Marche "movement" (LREM) was built – bottom-up – by a door-to-door campaign, all-around France, to get the opinions and ideas of tens of thousands of citizens. This huge amount of Big Data (answers) was processed through feed-forward "learning" algorithms, and the final outputs pointed the main issues for the campaign's political program. No ideological stance involved. The slogan was: "neither right nor left." No ideal vision of society: the effort was to propose achievable solutions for solving actual and present problems. This approach attracted impressive numbers of civil society militants and cadres, with no past political engagement. People ready to defend "their" political program within a limited timeframe, but that had no intention of becoming long-term professional politicians. LREM won a big majority of seats in the National Assembly, guaranteeing that Macron had all the needed elbowroom to rush the implementation of his program's agenda.

As a matter of fact, the President's more "classical" vertical leadership supplements the horizontal "digital" practice. Bottom-up programmatic contents, but top-down decision-making for expeditious implementation. Efficiency is one of the presidency's central promises. It is openly accepted that trust in the new government depends on tangible positive results. Failure to deliver on time means the president and its legislative majority deserve to lose power. No wonder, the whole endeavor can be labeled "start-up politics," a political consumer-centered model. Undoubtedly, the new entrepreneurial practices – combining heavy interconnectivity and a strong charismatic business leadership – are clearly an inspiration for the new French "non-ideological" power structures. And new-economy urban professionals are strongly represented in the LREM movement.

This verticality of decisional power – publicly asserted by Macron – is deemed even more necessary for activating the foreign policy agenda. LREM and the new President won the electoral races by opposing, head-on, French nationalistic and xenophobic groups and by defending a deepening of the European integration. For the first time in France – and maybe in Europe – a head of State has a clear mandate to tackle the new "digital world" political and economic conundrum: to create a novel political and social compound associating the three main levels of decision-making – local, national and transnational institutions. "Contractual" agreements between the central government and sub-national entities, reinstating the central government authority, and the reinforcement and deep reform of the EU system, are three main political priorities of the Macron's presidency. Success, by all means, is uncertain. But the whole endeavor looks like the most sophisticated attempt to grow new attractors and patterns for the transition period between the old and the new ages. Even if arrogance and drunkenness with power are cardinal sins of the start-up logic (as Uber's Travis Kalanick, Theranos' Elisabeth Holmes or Tesla's Elon Musk have clearly displayed).

The "Good Government" is the One Who Catches Mice

Nobody knows what the future socio-economic momentarily stable pattern will be. Thus, the "core" political regime (or combination of political regimes) that will "stabilize" this pattern is also unknown. This "core" will emerge gradually within the activity of our global social recurrent neural network (RNN). Its features will result from two main paths to "newness": (a) the interplay of "intentional" moves of a myriad

of protagonists, individuals and affinity groups (in AI speak: “sigmoid neurons” and social forms of “capsules networks”²¹, transient and time-limited); (b) the innovative responses that these moves produce when they interact with the present social, institutional, and ecological environment and its historical “memories.” The question is how to perceive – an act on – the political dynamics of the present transition period from the old to a new “stable” pattern. A complex exercise since we are facing permanently mutating recurrent inputs shaping the future possible stable output(s).

In a world where any “authority” struggles to survive the dense interpersonal communications networks, the age-old search for the “best regime” has lost its meaning – other than a one-sided act of faith. It is not – if it ever was – a question of “choice”: nowadays, no one (and no institution) can claim a sufficiently consensual influence and decision-making power to define a final pattern outcome. Even if a small number of moral philosophers – or autocrats – keep longing for the idea of pre-determined “best regimes” grounded on natural law, religious precepts, reason, ideology²² or post-biology “general deep learning”²³. Individual social empowerment and the non-conscious – and non-intentional – survival imperative lead to social participation based on personal preferences, “desires,” or “passions”²⁴ (different “weights” or “biases” in our neural network). Each protagonist fits in different rungs of a “freedom” versus “security” scale. Today, these very concrete self-conscious “subjects” are mostly concentrated in the rich most economically advanced countries, or in poor countries’ more affluent urban centers. They can actually act in an “individual” manner thanks to the fact that their basic vital needs are fulfilled by more or less efficient public administrations and economic dynamics, and that they benefit from powerful personal communications tools.

Today, the “good government” – at any institutional level – is seen as the one who contributes to solve the concrete everyday problems. Pledges to lead “the people” to a “promised land” or to values-charged purposes (Justice, Equality, collective Happiness, Virtue...) are now clearly depreciated. Polls after polls show a growing preference for “technocratic governance” – even authoritarian or scarcely representative administrations – provided it “does the job.” This rejection of “politics-as-usual” mirrors the shift from ideologically predetermined goals to efficient “management” (often called “pragmatism”). Deng Xiaoping’s formula – “It doesn’t matter whether the cat is black or white, as long as it catches mice” – is becoming standard wisdom. Emerging algorithms, attractors and patterns will survive as long as they “work.” They will be discarded by the social neural network activity if they don’t – or are not necessary anymore.

This new Weltanschauung does not emanate from a political consensus arising from “representative government,” or from an intellectual artifice of some contemporary “digital” philosophers. Both now lack this kind of consented influence. The changing social-economic environment and the resulting neural combination is being shaped by our “biased” interactions colliding with the non-conscious impulses and biases of other individuals and social compounds. It is a permanent pressure to “take sides,” or walk away from it all – the “sides,” by the way, being nearly infinite and mutating. This is no “end of history,” just

21. SABOUR S., FROOST N., HINTON G. (2017): “Dynamic Routing between Capsules”, Cornell University Library, online, November 7, 2017. <https://arXiv:1710.09829v2>

22. MANENT P. (2018): op. cit. Also: “Neo-Thomists” working within the Catholic tradition, the late John Rawls, new natural law theorists, neo-Marxist thinkers... or Xi Jinping’s “socialism with Chinese characteristics”.

23. SCHMIDHUBER J. (2017), “Falling Walls: The Past, Present and Future of Artificial Intelligence”, Scientific American, November 2, 2017. <https://blogs.scientificamerican.com/observations/falling-walls-the-past-present-and-future-of-artificial-intelligence/?print=true>

24. An 18th century Enlightenment intuition already glimpsed by the French philosopher Helvetius. HELVETIUS M. (1773): *De l’Homme et de ses facultés intellectuelles et de son éducation*, Tome premier, Section IV, Chapitre 22, La Société Typographique, London 1773. A point of view harshly criticized by Eric Voegelin, which considers that this conception of human behavior is at the root of totalitarian ideologies and regimes. VOEGELIN E. (1975): *From Enlightenment to Revolution* (ed. J. H. Hallowell), Duke University Press, Durham, North Carolina 1975.

another chapter of humanity's agonistic reality and the struggle to control it through cooperation.

No doubt, the putative future "stable" pattern(s) could very well function far from what today's democrats and freedom-lovers wish, but also far from what neo-authoritarians think they can deliver. New trends of political and moral philosophy will have to emerge in order to substantiate the socially shared mental "glue" of an eventual new pattern. Meanwhile, our diverse age-old traditions are still active as inputs to the present functioning of our integrated neural societies. Their interactions with the outputs/inputs of contemporary realities are shaping – in a non-linear way – our personal and social understanding of our "to-be" political organizations and institutions that would set the "rules of the game" (or "social algorithms") of our personal and group behaviors (allegiances, hierarchies, identities...).

The Guarantor of Last Resort Dilemma

The unpredictable outcomes that will define a new political "pattern" do not depend on "political will." "Will" is the individual capacity of each "actor" – powerful or not – to follow a specific behavior, which supposes different degrees of courage, resilience, clarity, shrewdness, moderation... It means a willingness to take risks that, ultimately, could threaten the individual's survival *lato sensu*. This aporia – to risk one's survival in order to survive – is one of the main dynamics that creates "newness." However, if imposing a "common good" is now a delusion, who – or what – can assume the ineludible responsibility for preserving common security, which is the cornerstone of any social process? The equation is simple: no civil peace without basic consensual rules, and no rules without enforcement. Yet, if political legitimacy is on the wane, who dictates the rules and who owns the monopoly of the "legitimate use of force"? Another aporia: to defend a society's "order" by the use of force, one has to possess the authority – and means – to ignore and to step outside the rules and legal order. "Sovereign is he who decides on the exception."²⁵

The problem – as we already mentioned – is that the emerging socio-economic patterns "disintermediate" the national government's power to manage its constituency. The model of the industrial era nation-state rested on the use of official statistics apparatus and sociological definitions to distribute citizens into "categories," which would discriminate "deviant" from "normal" – or "average" – behavior. In addition, top-down "law and order" interventions were conducted in the name of the "public interest." Nowadays, as a result of digital technologies, the focus is on each individual's "footprints" left all over social networks, smartphones, GPS tracking, credit card consumption, CTV, Internet activity, etc. In an increasingly personalized consumer-driven – and single citizen-driven – social system, the priority is the constant monitoring of individual conduct. Exit pre-defined "categories." This new ocean of ever-changing personal choices can be tracked and analyzed by potent AI algorithms that "mine" humongous databases. Identification of patterns of conduct is becoming the main technological tool for anticipating each person's inclinations and for suggesting a personalized and continuous flow of consumer choices, life styles, and even political ideas. The giant companies of the "new economy" know that it is not about what people say or think, but how people act.

25. The famous first sentence of Carl Schmitt's 1922 essay *Politische Theologie*. An insight that can be applied to the United States' role as a last resort guarantor of the post-WWII Western "liberal order". See SCHMITT C. (2005): *Political Theology: Four Chapters on the Concept of Sovereignty* (translation), The University of Chicago Press, Chicago 2005.

A socio-political organization congruent with this new reality can be either totalitarian or freedom loving:

“My thesis, to put it bluntly, is that from late Neolithic times in the Near East, right down to our own day, two technologies have recurrently existed side by side: one authoritarian, the other democratic, the first system-centered, immensely powerful, but inherently unstable, the other man-centered, relatively weak, but resourceful and durable”.

Lewis Mumford (1964)²⁶

The territorial Nation-State – Fordism’s political offshoot – was the “Sovereign” that took over the role of “guarantor of last resort.” Totalitarian “Party-States,” authoritarian populism, representative democracy and all other avatars of this mode of government are all driven by small or large self-characterized “enlightened” elites. Their legitimacy is derived from vertical forms of management and control of “representable” social categories: defense and police forces, political parties, cultural establishments, and the whole hierarchy of public institutions and administrations with their armies of public servants. Granted: accountability, responsibility, rule of law, alternation in power positions, and respect for basic individual and collective rights and freedoms make the difference between “system-centered” and “man-centered” political “technologies.”

Now, the Nation-State is losing fast its monopoly of the official statistical classification of its citizenship to “non-national” and private “masters of the algorithms”²⁷, social media, and even Internet-savvy authoritarian foreign governments. As “national” mass categories fragment, the task of sustaining a majority consensus – even for a limited timeframe – has turned into an uphill battle. True, many people still yearn for some form of common “belonging,” and “identity politics” are on the rise – never mind their endless multiplicity. But their priority is “solutions” to their problems “right now,” and not “dreams” of a utopian common good. Sure, every social compound needs some form of symbolic narrative. During the industrial age, broadly worded proposed solutions were embedded in powerful narratives. However, in the digital era, narratives will have to take shape and be embedded in a constant flow of specific solutions.

Are new times breeding a new model of political authority? A social non-political super-Algorithm, capable of strategic thinking that would take care of people’s lives? A new sort of “sovereign” that is omniscient and impartial enough to be accepted by its “digital subjects” as a legitimate authority and guarantor of last resort? This “end of Enlightenment” society²⁸ would still be confronted with the millennium-old dilemma: how to enforce the “decisions” – or “proposals” – of this AI “stranger-King”²⁹. A perfect totalitarian system could automatically “disconnect” rebels or deviants (China is trying hard with its policy of “social credits”), but ultimately, implementation needs traditional “hard power” decisions – the threat of undifferentiated and arbitrary cruelty against life and property. Quis custodiet ipsos custodes?³⁰ (Who will guard the guards themselves?).

True, universal interconnection is also encouraging new ways of social organization that enhances individual

26. MUNFORD L. (1964): “Authoritarian and Democratic Technics” – Technology and Culture Vol 5, n° 1, Winter 1964. John Hopkins University Press, Washington DC.

27. VALLADÃO, A. G. A. (2014): op. cit.

28. KISSINGER H. (2018): “How the Enlightenment Ends”, The Atlantic, June 2018.

<https://www.theatlantic.com/magazine/archive/2018/06/henry-kissinger-ai-could-mean-the-end-of-human-history/559124/>

29. GRAEBER D. & SAHLINS M. (2017): Introduction “Theses on kingship”, On Kings, University of Chicago Press, Chicago 2017.

30. JUVENAL: Satires VI, lines 347-348.

freedoms: the use of information platforms to develop crowdsourcing, unrestrained circulation of ideas and knowledge, cross-border communities and the “sharing economy”. Perhaps, “democratic” solutions – like the “start-up politics” tried in France – can avoid the twin AI pitfalls of techno-totalitarianism or “liberal paternalism”³¹. But those who strive for individual freedoms will still have to solve the old fundamental question: how to protect (also physically) the process of putting together freedom-based societies? An exciting challenge for today’s young generations.

Conclusion

An army of ambitious – or mad – social scientists, with huge numbers of super quantum computers at their disposal, could dream of modeling the whole political history of humankind, from the Paleolithic to present days. Results, obtained through trial-and-error iterations, are theoretically possible. After all, they would be dealing with the past: all the “weights” or “biases” (known or still discoverable), the whole list of “attractors” and their “basins,” the known succession of “newness” and “stable” patterns. Still, maybe they would be able to “see” patterns of new behaviors; but they couldn’t predict neither “newness” nor future “stable patterns”. Whatever its granularity and degrees of dynamic interconnections, a model remains an “abstraction” of concrete reality. Social scientists are human beings. They struggle with their own personal and collective biases, which always “inform” their choices of pertinent “attractors” and “sub-patterns.”

Granted, this has always been the lot of any scientific endeavor. Nevertheless, it is worth keeping in mind, in a time when AI-systems engineers are aiming for total “objectivity” by eliminating the personal character of human cognition³². In order to build a recurrent neural network prototype, social scientists cannot avoid defining an initial “evolving set of goals” (long-term goals equivalent to our RNN “stable goals”). That preliminary step is essential in order to avoid chaotic iterations with no “meaning.” Thus, the “encoding” of the model will inevitably reflect political, social and individual references and preferences. It means, concretely, that an array of RNN models will be running in parallel or in competition. Moreover, the functioning of each of these intellectual networks will be “attracted” by the postulated long-term goals of each individual or research group. Their final outputs will always remain a work-in-progress, but the interaction of all these RNN patterns could produce a dynamic “super-pattern” – a more consensual vision on how to “modelize” contemporary and evolving political history.

Obviously, nothing guarantees that this kind of Political Science super-pattern will emerge, or that it will match reality. And no one can predict what will be the impact of this scientific activity and discoveries on real world concrete iteration mechanisms. Nobody is “outside” with a “God’s eye.” In addition, the idea of an outwardly “Intelligence” that commands humankind and each person’s behavior is just an estimable source of very much needed solace. Yet, maybe the concept of human history as an AI-driven recurrent neural-network would be a contribution for seeking new horizons in Political Science research. An experimental way to go beyond the tired and pessimistic reiteration of the discipline’s classical assumptions and debates. OK, this is not “solutionatics,” but nowadays dreams of predetermined solutions have vanished.

As Medieval “natural” astrologers very well knew:

Astra inclinant, non necessitant – Stars incline; they do not determine

Pseudo-Ptolemy (Centiloquium)

31. HELBING D. et al. (2017): op. cit.

32. KISSINGER H. (2018): op. cit.

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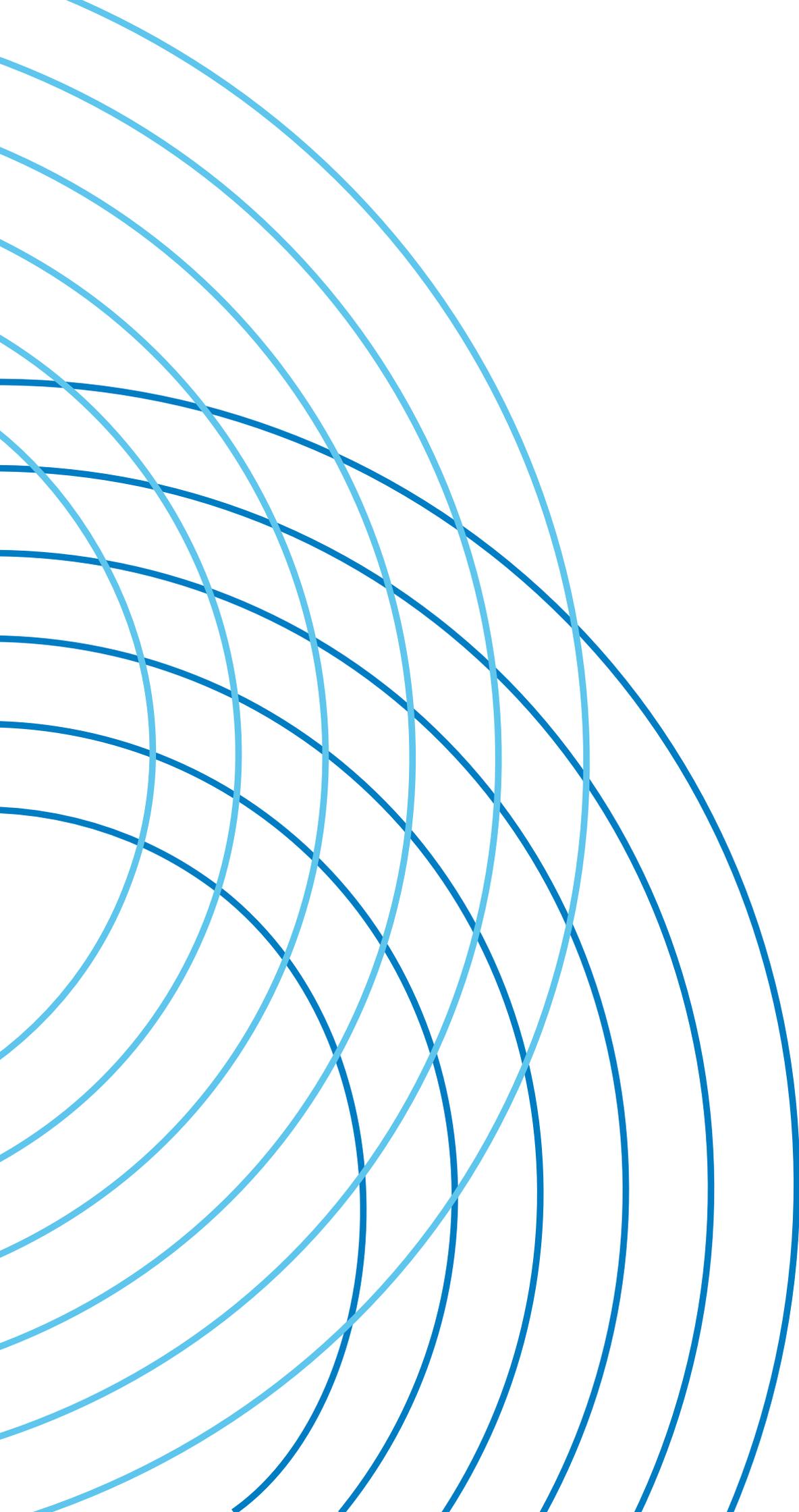
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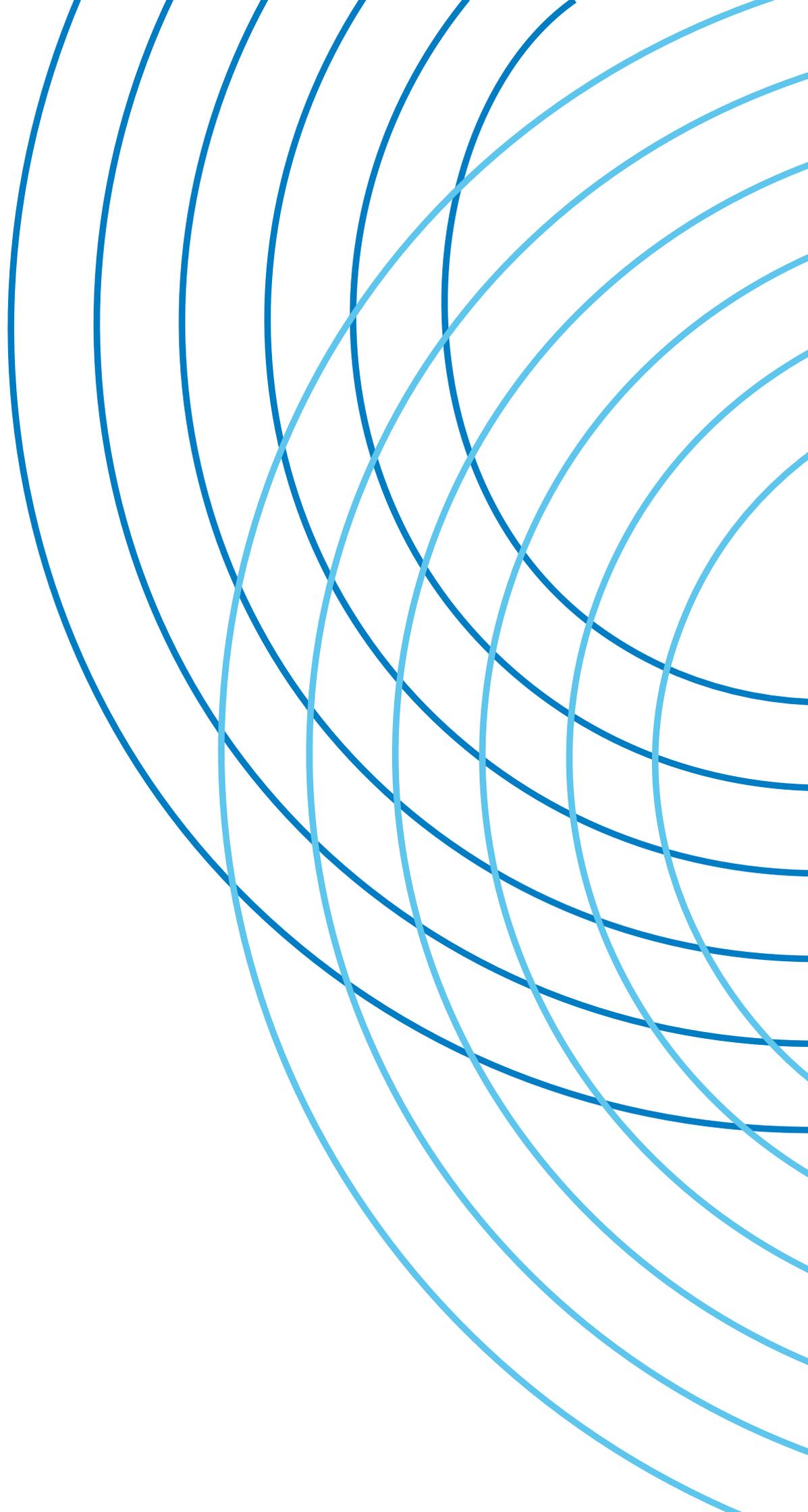
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