

**Research Article****The Episteme of Meta-Modernity: Order, Value, and Citizenship in the Space of ‘Digital Finitudes’****Prof Milan Jaros**

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**Abstract:** Fuelled by the neo-liberal division of labour, complexification acquired a life of its own. This gave a novel dimension to the growing gap between emergent knowledge and human systems, knowing and being, between the human content of work and its outcomes, value and citizenship. It is argued that here is one of the key reasons why most decisions are made in the chaotic space of ephemeral price relations manufactured by the data-rich, runaway ‘surveillance commoditism’. However, advances in quantitative, empirical methodologies also open an action space for a fresh research agenda. It is to recast our past and present into transparent, directional genealogical accounts of order generation and actualisation recording the ascent and limits of development as well as its pathways between the ‘lab & cloister’ and the social systems. It grounds a new, ‘meta-modern’ Foucauldian episteme in which the notion of order freed of power-hungry impositions assumes the role of an onto-epistemic variable and offers a rational base for defeating the prospect of ‘digitally enhanced serfdom’. The necessary condition for this agenda to begin to assert itself is a radical methodological transformation of educational and management programmes aimed at bottom up ownership of, and responsibility for the making, choosing, and symbolising, with a view to restoring value as a measure of actualisation of human independence and ability. Only then can knowledge live up to its foundational mission of liberation by reason.

**Key words:** emergent knowledge and human systems, episteme, order, value, competence and educational methodology.

**1. An Overview****1.1 Order as an Independent Onto-Epistemic Variable**

Since Pythagoras, manifestations of regularities and order - the motion of planets, symmetry of crystalline planes and Platonic Solids – enjoyed the status of a Revelation of the ways of Divine Reason. When Kant sat down to account for Newton’s achievements, he took what he understood as law like, *a priori* character of the natural order for a model on which to develop a new epistemology capable of providing unambiguous rational criteria for separation of knowledge from opinion. In particular, what is and is not independent order became the backbone of Kant’s transcendental system. However, in later schools of thought, its role became subsumed into serving preconceived ends (e.g. Hegel’s). Michel Foucault, and later the quantitative, empirical methods enabled by digital technologies, radically departed from this tradition. Although in his oeuvre Foucault soon remained tied to the current ‘linguistic turn’, it did promote order to its potential use as an independent, onto-epistemic variable. Its ascent became the potential means with which to express independent content of value and directional development.

**1.2 Methodological Shifts Constitutive of the Episteme of Meta-Modernity**

The division and organisation of labour managed by the neo-liberal regime greatly accelerated the rise to prominence of a novel class of social dynamics peculiar to open systems with a large density of interacting elements, to complex and nonlinear systems such as the stock market and turbulence. It frames the

production and consummation of ordered structures shared between the mind & lab and the social systems, and the resulting perpetual restructuring across the full spectrum of social relations. Such processes are modelled by iterative, re-enacting facilities requiring the state of the art computer techniques and data processing methodologies.

Already the 20<sup>th</sup> century ‘demoted’ representations of life informing the functioning of human organisations from ‘universal’ to ‘finite’, that is limited in space, time, scope, and accuracy. Also, the notion of autonomy of objects and subjects inherited from the Enlightenment became fatally weakened amidst the chaotic flow of fragmented interactions rapidly replacing the structures built by the canons of modernity and accessible almost without exception only via layers of invasive mediators. Then it is more effective to establish meaning and presence through the parameters accounting for the way an object ‘acts’, i.e. dynamically ‘registers itself’ at the site of its functioning. The order of things and the concept of value recast in this manner amount to a qualitative methodological change in the approach to what has always been the task of approximating an open structure by a closed one, that is by one permitting, at least in theory, a solution. This shift in method is constitutive of the episteme of meta-modernity. The accounts of life processes are consciously or unconsciously expressed in terms of the degree of recognition of any registered object-as-process by human and non-human agents, of the order parameters in question, and of their position in or contribution to genealogical lines of normative digital products. These are

transparent records cast in units of the ascent of order generation and actualisation, not in terms of claims about 'good or bad', 'art or kitsch' based on speculative criteria.

### 1.3 New Research Agendas: Reclaiming our Past and Present in Genealogies of Ascent of Independent Order

When products of human work and its value can be expressed as ascent of independent order generation and actualisation, it is as if the Hegelian and Marxian dreams of objectifying dialectics of historical processes come to a paradoxical fruition. Paradoxical because now the sequences of "historical" stages of development of various aspects of life are being actively revisited and systemised not by a speculative doctrine but by empirical inquiries opened to scrutiny and legitimated by the emergent knowledge and its product, digital methodologies.

This project promises to redeem in a transparent, independent form the directionality of development past and future be it in a very novel conceptual framework. It will create tools indispensable for reshaping the normative structures in society; indispensable because the rise in speed and technical accomplishment of the state of the art structures of making and doing renders it difficult even for those blessed with deepest insights to cope with the growing gap between emergent knowledge and human systems. Assessment of any event must, apart from the traditional specialist concerns, include the role of contingent interactions involving participatory agencies which often cover a wide range of technical domains at levels of competence that are difficult to gauge. The sum of such interactions determine more than any top down directives the norms for what is or is not socially acceptable, right and wrong, what is the expert and what the public domain.

### 1.4 The Educational Challenge

In the condition of meta-modernity, functionality of decisions must depend to a large degree on competent access to and appreciation of limits of applicability of the defining parameters of new forms of order and ordered structures, on competent evaluation of the forces grounding the transformation of society by front line sciences and by the organisational structures instrumental in bringing them about or set up in their wake. Apart from a few notable exceptions, this challenge is not matched by availability of relevant programmes in education and management. As a result, the playing field is left to runaway complexification of life. This uncanny condition of humans is neither necessary nor irreparable. It will be argued that the necessary condition for addressing this challenge is a generic methodological shift in educational and organisational programmes enabling every individual to reach, in a bottom up, object-based, and project-mediated manner, the ownership of their activities in which value is a measure of actualisation of the individual human potential.

## 2. The Actuality of Modernity: Foundational Principles of Independent Inquiry

The rapid transformation of modernity into the 'digital' present

had fundamentally altered the relation between work and value which are being perpetually recast into new normative frames. Yet they must also actively co-exist with the conceptual and behavioural legacy deposited in human minds over many centuries. In particular, the legacy of modernity and its evolution is constitutive of independent reason and its application. It was this modern reason that systematically undermined - though never fully removed from the deep forests of unconscious reckonings - the deeply embedded status of work in Christianity as penance, and of inquiry as celebration of God's Grace. It therefore remains an indispensable point of departure for a critical appreciation of the past and present, and for any serious research agenda today and tomorrow.

Since Pythagoras thinkers have been fascinated by the Natural and any thinkable order but for centuries they did not have the tools to make their models 'stick'. A glimpse at the totality of perfection resting for ever above the eighth's sphere could only be obtained at a moment of holy madness, as a Gift of revelation granted to the contemplating soul. Time was the image of eternity. The Cosmos of Humans, Gods, and Things, the unity of Nature, virtue, and truth cannot be serviced by labour, only by way of life shared with Socrates in the olive groves of Athens. Science, cosmic speculations, are about saving appearances, about acknowledgement of the Divine Order constitutive of humanity, of the regularity of planetary motion, crystalline symmetry, or laws of geometry.

By the time the Christian centuries rose to the reality of medieval Europe, scholastic speculations became so overloaded with meanings that it was increasingly difficult to take seriously the claim that the Summa Theologiae really represents a Given Law. But since this law was God's law, humans could free themselves only if they took His place. Both Hobbes and Galileo ended up with a modern man who takes it upon himself to posit the ends. Human becomes a measure of things, master of Nature. True, for Newton the laws of nature were God's laws and the inquiry into the world of natural phenomena was a celebration of the Glory of His Creation. But these laws are comprehensible only through the intellect of humans, through the autonomous mind of an independent observer. Galileo's measure and quantify and Newton's calculus and laws of motion provided the means for grounding this process in a radically new objectivity.

Kant set out to bring together philosophy and Newton's achievement. Knowledge is the knowledge of phenomena, the domain of Pure Reason which depends on *a priori* forms of perception, of time and space, and on categories of logic which can promote a set of individual dis-interested observations to the level of a law. But for any actualization of the theoretical necessity to take place there must be a connection between the domains of necessity and individual freedom on which this actualization depends. To establish this connection is the task of the Third Critique, the Critique of Judgement. Kant conjectures that reflective judgement has an *a priori* principle related to feeling in a way analogous to that in which the *a priori* principles of the understanding relate to knowledge of empirical facts. In employing reflective judgement, he again

demands purposive organisation and proceeds *as if* nature were so organised. Kant considers only the metaphysical concept of purpose which is independent of human desire. He distinguishes between the purposiveness of a particular whole and the purpose which it serves. He posits that there is a real separation between the two, i.e. that purposiveness may be without purpose! Then beauty is the "form of purposiveness in an object", an order of structure contained in it in so far as it is perceived apart from a "presentation of a purpose". We often speak of the harmony and 'design' of a whole without referring to a designer or the purpose to which it might have been designed (Körner, 1990).

Kant's call to coming generations was not about 'taxonomy of order'. Nor were there effective tools to make any such project credible. His challenge was to account for development, for the process of knowledge acquisition, for the cultural change and the diversity of opinion (value) in place and time. It was taken up by Hegel. He accepted Kant's onto-epistemology as a starting point but argued that it is incomplete, merely 'formal'. He adopted a position of an "objective idealist" ("monist") that allowed him to develop what in Marx's terms became dialectics of objectification of the material exchanges constituting the human condition via social labour. It is then not about ascent of self-understanding of the collective mind (Spirit) but about socially accredited human engagement with the material world of things in the quest for novel form of order fostering development and fulfilment of the personal potential of every individual. Labour, work as social labour becomes an onto-epistemic concept and the measure of value. The Kantian order unravelled by Transcendental Critiques becomes a mere formal pre-requisite of the dialectics of History (e.g. Habermas, 1972, Part I, and 1987, lectures I-III).

### 3. Michel Foucault's Episteme Revisited

Already in the first decades of the 20<sup>th</sup> century the legacy of the 19<sup>th</sup> century thinkers came under attack. One of the outstanding interventions was Foucault's revisiting of Aristotle's idea of Episteme and rescuing the notion of order from its subordination to sequences of social effects brilliantly selected to desired ends by great system builders like Hegel (Foucault, 1973). He argued that the perception of knowledge and life is grounded in the epoch's notion of order, in the way it sees things connected together. This depends on the period's usage of signs, i.e. on those relations between reality and its representations in human discourse that are used to formulate and implement norms. Relationships between things - the order of things - are then an expression of the way people in a given era 'select' things and events.

With the rise of empirical science the status of resemblances was gradually demoted from being the source of knowledge to the realm of error or charming fantasy. Language and thought were 'freed of things' and became one form of representation of reality. In empirical sciences the relation between things must be seen in terms of a law-like order. Hence problems of measurement and evaluation must also be reduced to problems of order.

The 17th and 18th century witnessed the growth of knowledge

as a network of identities and relations. The world - of his Classical Episteme - was made up of isolated elements related by representations fitting an assumingly timeless order and established by systematic analysis of empirical reality as if in the form of a table. At the end of the 18th century the trust in this outlook began to wane. In Foucault's Modern Episteme, instead of individual's cognition, ability, and self-interest enter collective concepts like social class, capital, division of labour, artistic styles such as Renaissance and Baroque, eras of capitalism and socialism; in science it is not just particle mass, trajectory, and acceleration but collective phenomena and concepts like fields, ensembles, entropy, and energy. When one begins to look for a sequential, ascending development of the epochal stages of the social, the meaning is no longer fixed by the act of representation. Instead it is dominated by the history of the way it was formed and how it functions. Hence in the Modern Episteme representation becomes something to be studied and classified.

### 4. The Episteme of Meta-Modernity

The digital age supposedly shares with modernity its project of liberation of humans by reason, from caprices of nature and any outbursts of arbitrary will of other humans to say the least; it claims adherence to the ideal of an autonomous Self able freely to function in society and fulfil its personal potential. It also retains practices of the Scientific Method and the Critical Theory. However, in the last decades of the 20<sup>th</sup> century the social became visibly fragmented into novel 'levels of being' - molecular, viroid, genetic, financialised, galactic etc., i.e. into semi-autonomous domains of activity or systems often functional away from equilibrium and well beyond the scope of the 'human dimension', of the human senses, bodily powers, and general knowledge. The advent of quantitative, empirically based, analytic and microscopic methods grounded in the laws of nature, in logic, mathematics, and their application to human systems, made it imperative for people critically to acknowledge different levels of complexity in physical and social domains. The division of labour and the work practices in general rapidly adopt and apply new forms of order as they emerge from the 'lab and cloister'. They enter the social via a multitude of invasive mediators such as social networks, but also via networked access to systems of health, education, civil and military organisations, all of which can only be effectively accessed and used by employing networked procedures.

It will become clear from the following sections that this is not to regard creative thoughts and the scientific knowledge in particular as 'social constructs'. Nor is it a veiled promotion of demented scientism. As the first buds of scientific research are being turned in some cloistered environment into electronic signals, first perhaps just to make sense of them among partners, they already enter a 'digitally-enriched object-ness'. As soon as such records leave their protective shell they lose the rigour at least theoretically guaranteed by the scientific methodology. They become rapidly projected on various communication and decision making (value) structures, with limits of applicability and vocabularies of their own, and with terms of reference extending from the managerial and

consumer organisations to the socio-cultural structures and symbolisation that make life with them liveable. It means that in our age any signs recording human and machinic activity from their very birth rapidly acquire novel levels of existence and meaning as well as mobility and interactivity, intended and unintended. Not only is it then more demanding and necessary to live up to the scientific method, to protect independence of thought and personal integrity etc., but also to create safeguards about the conditions under which this novel objectness is projected on mediating devices and symbolising vocabularies steeped in the social and capable of framing the mind and the machine (there are detailed accounts in the literature documenting this development from arts to finance, e.g. Jaros, 2001 and 2007, Mackenzie, 2002, Morris, 2010, Foster, 2011 and 2015, Westra, 2012 and 2015, Piketty, 2013, Steyer, 2017, Stiglitz, 2018). The episteme of the digital age - to proceed in the spirit of Foucault's project - is then best described as 'more than modern' or 'meta-modern'.

#### 4.1 Human Thought Caught in the Cunning of Complexified Matter

In the course of the 20<sup>th</sup> century, sciences (e.g. Jaros, 2003), as well as industry and human organisations across the whole spectrum of human endeavour (e.g. Harvey, 2010), had been divided into a multitude of streams of disparate speed and character. This led to an entirely novel and critically fragmented division of labour. It also fatally weakened the modern public space. The rapid increase in speed, strength, and density of interactions turned the productive space into an open system of high complexity operating largely away from equilibrium (see a review by Nowotny, 2016, with many references). Predictive modelling is then possible only after a competent reduction to 'linearised', 'closed' sub-systems is made. This is what students of complexity and nonlinearity do (e.g. Sornette, 2003).

A measure of complexity is given by the ratio of the number independent parameters needed to define the system to the number of elements constituting it. However, a complicated system may still be of low complexity; for example, most of the physical properties of a sample of crystalline silicon containing millions of atoms can be modelled with a dozen or so parameters. Many systems of high complexity (e.g. the human body) can be successfully reduced to sub-systems offering solutions with transparent limits of applicability (e.g. blood circulation). This is also the key to the success of some well known systems of thought inherited from past centuries such as Newton's and Marx's - though of course neither was very likely to have thought of it this way. Today, we can say that it was a good approximation to model mid-19<sup>th</sup> century capitalist production in England as a quasi-closed system (Westra, 2012, 2015). Newton's and Marx's are approximate models of motion and economics, resp.; even though not all motion we know of can be described by Newton's laws, that does not make them less useful, only subject to well established limits of applicability. It is also possible to see that way other systems of thought from the pre-digital eras such as Hegel's dialectics leading to successive stages of self-

understanding of the collective mind (Spirit).

When a reduction to subsystems is not feasible, the problem is studied by re-enacting its behaviour by iterative procedures. There is no definite solution though there are scenarios with conditions of applicability. The same applies to handling nonlinearity, from the stock market behaviour to turbulences.

#### 4.2 The Gap between Emergent Knowledge and Human Systems: Work, Value, and Citizenship

Marx's labour theory of value made it possible to appreciate value in terms of a generic relationship between work and life. When value is grounded in social labour, labour, work becomes an onto-epistemic concept. It is this methodological turn that makes Marx's legacy relevant even though today the human condition is very different.

As expected of a young man steeped in Hegelian methodology, Marx sought objectivity in his concept of value. He thought he found it by regarding the process of material exchange very much like the dialectics driving Hegelian History. Then - to the extent to which the assumptions underlying his model are satisfied - humans can transcend the commoditisation of their labour and remain free to develop the personal intellectual capital and the human systems supporting it.

The neo-liberal regime of complexity-enforced division of labour equates value to price, to the beauty contest known as the market. Only a small part of today's productive processes resembles Marxian capitalism. For example, not only the hedge funds and banks, but also the largest motor manufacturers apparently get most of their profit from 'financial products' (Harvey, 2010, Westra, 2012)! The human content of work disappears in the flow of objectified social exchanges separated from the means of recognising and understanding the difference between knowledge and opinion, from the social content of new forms of order driving development. Life is being reduced to mindless conformity, to "digitally enhanced serfdom" (Jaros, 2018) maintained by deceptive pursuits of consumption. From kitchen habits to usage of exclamation marks in e-mails, the surveillance regime of 'commoditism' turns, without much resistance by social systems, everything into objects sold and resold in order to lay paths along which customer decision making desired by the funding agencies must travel - and to keep removing from the network any alternatives which might be used by those who wish consciously to resist this onslaught. The 'electronic grading' of citizenship in China must be the crowning achievement of the craft of 'digital panopticon' making!

Unlike the spectres announced in the *Communist Manifesto* or in von Hayek's warning against collectivism (Hayek, 1944), the spectral forces of the digitally enhanced serfdom are 'classless' - though quite inventive in their ways of attack! For as many have shown - in novels (e.g. Foulks, 2009, DeLillo, 2010, Houellebecq, 2001) as well as in specialist studies (Mirowski, 2013, Mayer, 2016, Steyer, 2017, Nachtway, 2018, to name just a few) - no amount of hot dollars can buy them off! The social systems of today, lacking a meaningful tool to restructure norms for the functioning of technology, at best react belatedly to the new forms of order as they leave the

office or labs; and they can only do so by following the pathways external to them!

As Marx persuasively argued, industry, production in the broadest sense of the term, is the 'reality' of science, of independent reason in general; as such it is also a bearer of its social problems and cultural contradictions. While this is much written about by academics, it is certainly not at all academic. Innovations have always created a gap between those few with creative gifts and the 'social systems'. Just as religious schools cast their spell so did the march from stone and iron to steel, steam, and electricity. However, even in 1940 an artillery commander who was unlikely to understand the Hamilton equations needed to calculate the optimum projectile path was comfortable with the tables which taught him under what angle the gun should fire for a given projectile and the distance to target. However, by the end of the second millennium, this 'input' became transformed into a product of several networked systems, such as those of infrared detectors identifying the target coordinates and carried by satellites or high flying aircrafts plugged into surveillance and command structures; these are backed up by parallel optoelectronic systems assessing the movements and multiple response functions of the opponent which may be close or very far from the gunners. This shift in the character and practice of operational procedures is no less real for making cars or medicines.

There are many classes of manifestations of this gap. If George Friedman and Meredith Lebard appreciated what was happening, around 1990 at, say, the IBM T.J. Watson Institute, DARPA, or AT&T Bell Labs - such as the movement of trillions of dollars 'from hardware to software' - the grotesque predictions in *The Coming War with Japan* of 1991 (and elsewhere!) could never have been published. What makes such displays of this gap even more worrying is the fact that since at least 1985 the scientific community as well as the general public were frequently reminded of the revolutionary changes in optoelectronics (e.g. Jaros, 1989) and of the coming of "communication superhighways"! Also, much had been written about the difference between the American and Japanese governmental and corporate structures. It should have been possible to see that the loyalty based social structures on which stood Japan's stunning success of the post-war decades must make it much more difficult to adapt to the radically different structural innovations offered by the advent of the digital age. When even well educated people in privileged social positions could (would) not take all this seriously enough, the only conclusion is that the action space of advancing neo-liberal regime was already so saturated by an overload of meaning it had itself encouraged to come into being that any distinction between knowledge and opinion has been badly blurred. Indeed, Edelstein (2018) shows that in spite of the clearly visible implications of the neo-liberal policies, and of a surplus of academic and private centres funded to address just such issues, no effective intellectual innovations matching the technological change came into being; no structural reforms of significance designed to bridge this gap were introduced by what became decades of a

'preservational regime'. This is not yet another bookish 'critique'! The reduction in the obligatory number of hours spent in the work place, increased availability of maintenance gadgets and means of transport etc., created more of what is often referred to as leisure time. However, in the absence of structural reforms capable of filling this potentially rich personal and social development space with systems fit to facilitate ownership of the new order generation and actualisation, the outcome is a picture familiar from previous crises: increased frustration which can only fuel deep personal unhappiness often translated into populism, hate, and manufacture of scapegoats. Indeed, we had the Iraq war, the Crash of 2008, the Arab Spring, waves of 'false news' at all levels of human organisation, cyber sabotage of the civil society, and so on. It is also the disenfranchising of all individuals that comes with today's work practices - one of the unavoidable manifestations of such a gap - that plays a key role in destabilising Western democracies!

Recent history shows that no amount of good will or revolutionary fervour, and certainly no amount of top-down 'reforms', can replace consensual decisions based on grasp of the social content of creativity and sweat - on the conviction that the independence making it possible for people to do what they enjoy and are good at, in a shared public space, is the ultimate measure of value. We all know when we look around and see people working very hard and with pleasure in their garden or garage, with a brush or drill that it is not 'work' as such that is the problem. It is the mercenary, regimented, complexity - enforced process of channelling individuals into roles they come to hate.

With a bottom up, personal ownership of value, of knowing and being, comes a bottom up ownership of social responsibility and purpose. Only that can make it possible effectively and sustainably to restructure the social norms of today. It was also this 'ownership' that the practices of East European socialism failed to deliver, in spite of giving everyone the right to work, free education and health service. Needless to add, the very task has been raised under various headings in programmatic texts such as Lenin's *State and Revolution*; there is also Antonio Gramsci's "counter-hegemony" project of bottom-up renewal of shared cultural spaces and its recent echoes in disparate quarters (e.g. Harootunian, 2015, Lilla, 2018)!

The call for ownership of value through freely engaged experience of reality is not peculiar to crises of modernity or meta-modernity. At the height of another collapse of the established order - under the overload of meaning this order had itself generated - Jan Amos Komensky (Comenius) offered in his *Orbis Pictus* (1658, trans. as *The Visible World in Pictures*) a way of leading young minds out of the obscurity of runaway scholastic speculations. His aim was to reconnect thought with the social and material reality of the present - and make it accessible for all. His intervention would today also fall under 'emergent knowledge and human systems'; for Comenius urges his fellow educationalists as well as the rulers of the day to regard science and its application in society as a "handmaiden" of the then prevailing religious outlook. And

after an equally catastrophic collapse of the French Monarchy, in the draft constitution of 1793 (never to be implemented!), Marquis de Condorcet proposed to give local assemblies the power to curb top down legislature, and to bid for popular support via an egalitarian participatory system. No wonder Vladimir Ilyich Lenin opened his gambit with a call for "power to the soviets"!

### 4.3 The Normative Power of Dynamic Ontology of the Digital Age

The transition from modernity to the 21<sup>st</sup> century's 'meta-modernity' is as fundamental as was the rise of the Age of Reason. The Kantian *Critiques* constituted the modern theory of knowledge and existence in which the world is like a huge gallery full of autonomous objects and subjects. Even when we know that "reliable knowledge" is not reachable we must behave as if the events before us were ordered. The alternative is chaos. In particular, the world out there to be observed and processed by a disinterested mind must remain a neutral referent. Even products of human work must be treated as if they were 'products' of nature. This is still tacitly or openly relied upon when it comes to re-asserting human rights, democratic citizenship, civil law, the public and the private, the modern Common or what is left of it! However, since Kant's day perpetual re-structuring has broken the habitual as well as creative lifeforms from arts to financial markets into a multitude of contingent physical and spiritual territories limited in space and function and multiply connected across the globe. The human condition in the 21<sup>st</sup> century is then best accounted for by a context dependent, 'dynamic' onto-epistemology (Smith, 1996). For the purposes of functional analysis and input-output modelling, what for instance a computer 'is', is determined by the choice of variables and their limits so that they focus on the way it is 'registered' – functions – at the site of engagement, e.g. reflecting whether the task-event is, say, about accountancy or about running a navigation system. Whether intended or not, it becomes a norm in any high tech environment. It is born in mind that its by-product is a network of pathways - along which thought is compelled to travel - grounded in the 'order of things' enforced by the divisions and connections cast by such dynamics of selection and imposition of 'digital finitudes'.

It will be argued below that this 'dynamic ontology' approach has also engulfed – be it in an uncanny and roundabout manner – the approaches to arts and humanities, and is about to replace there the surviving fragments of old norms and symbols.

### 4.4 From Long to Short Term Models

Although well-founded, rapidly improving empirical results have been appearing since the beginning of the 20<sup>th</sup> century (e.g. determining the age of the planet), it is only recently that such studies have been made fully technically fit authoritatively to challenge the inherited speculative wisdom about everything from souls to Cosmos. The current modelling methods of necessity ignore problems other than those chosen for the study even though some links to outside the finite spatio-temporal domain in question may be relevant and known as such. They are often called "short term" models.

The shift from the "Long Term", strongly qualitative schemes claiming universal validity and expressed in terms of epochal collective concepts, to quantitative empirical studies with transparent limits is constitutive of meta-modernity. This brings novel expectations in outcomes. There can be no empirical evidence about freedom or progress, only about freedom, say, to travel to Italy or progress in reducing infant mortality in Kakania. Even those well aware of the difference still find it difficult to resist the temptation to indulge the 'old ways' (e.g. Pinker, 2018)! There are no general 'consensual' criteria for legitimising the choice of parameters; these are determined by the internal consistency of the process, by the specificity (bounds) of the chosen topic, and by the limits of applicability of the empirical database employed. Hence such studies turn out to be built around 'one issue' such as male-female income inequality in the 20<sup>th</sup> century France. Complex, often away from equilibrium processes are reduced to quasi-closed systems so that predictions can be made. The procedures, scales, and units determining the range and accuracy of the instruments used in such studies lie well outside the scales and powers of the human body and senses, and of commonly used tools and knowledge. This leaves a novel conceptual and methodological gap between the state of the art work practices and the narrative and symbolic (social and cultural) tools on which effective human communication structures making life liveable depend. It is one of the outstanding intellectual and educational (e.g. Jaros, 2015, Part II, and 2018) challenges of meta-modernity to bridge this gap!

The first programmatic, concerted efforts to implement convincingly the methodology based on empirically grounded quantitative accounts of order generation and actualisation, and offering vital re-assessments of what has been taken for standard by previous generations, have only appeared in the last decade or so, particularly Morris' *Why The West Rules – For Now*, Piketty's *Capital in the 21<sup>st</sup> Century*, and *Empire of Things* – an empirical study of consumption - (Trentmann, 2016). For example, Professor Morris wants to show an evidential picture of a particular class of social development. He uses it to compare the Western and Eastern societies. This creates a base for makings predictions about the future development in such domains, too. He says he "just tells" of "his facts". He chooses four parameters or variables, namely the degree of energy capture, urbanism, information, and capacity to make war, with which to generate bounds for the empirical database; this is then made available to anyone wishing to re-examine his model. There is a 'price' for his kind of 'objectivity'. He must sacrifice any claim to universality. The error margins as well as outcomes are not fully independent of the choice of parameters. Nor is it easy to extract from the data what exactly such interdependence leads to. There are paradoxes. For instance, Morris' choice of variables seems, perhaps unintentionally, to favour the consumerist model: the more you consume, the more advanced the country. Or cultures with less power consumption, with more efficient and less wasteful technology and lifestyle, with no war machine, or with cities of modest size, end up classed as of 'inferior' social development.

#### 4.5 Value and Judgment in the Space of 'Digital Finitudes'

In today's science and engineering, empiricism and computer modelling are unavoidable whether in design, production, marketing, or management. However, apart from a few exceptions, humanities at large and philosophy in particular still insist on retaining, be it often under elaborate camouflage, the qualitative terminology of conceptualisation inherited from pre-digital traditions. Yet, paradoxically, read in terms of the account of meta-modernity given in the above paragraphs, their linguistic gymnastics mirror remarkably well the thrust of quantitative methods – though they make no references, indeed distance themselves from the vocabulary of empirical modelling such as variable, metric, database, limits of applicability, etc. An insight into such procedures can be found, for instance, in research projects associated with the so called ontological realism, an outlook shared in the broadest sense of the word by oeuvres of philosophers like Gilles Deleuze and Manuel De Landa, but also sociologists Niklas Luhmann and Bruno Latour, and aestheticians Graham Harman and Levi Bryant. There are many examples of this development, perhaps the best known coming from the last joint venture of the masters of this genre (Deleuze and Guattari, 1994). An instructive, verily a tutorial example of turning from the universal, epochal, and continuous to 'local', 'finite' domains and parameters can be found in De Landa (1997); in the absence of solid empirical data it is, of course, just 'anything goes'! The 1990ties witnessed a rapid rise in such projects some becoming bestselling sources of extraordinary inventiveness and entertaining narratives (e.g. Diamond, 1998). A positive, useful, and technically accomplished procedure for bridging the gap between the language of Deleuzian philosophy and that of computer science was given more than twenty years ago by the designer of intelligent machines and philosopher Brian Smith in his book *On the Origin of Objects* (Smith, 1996).

Leaving aside subtle differences, for thinkers allied to ontological realism substance (object) is formatted or structured without possessing qualities of the virtual. Virtual (not 'virtual reality'!) is 'real' without being actual. It is 'potency' and 'efficacy' belonging to an entity (object). It is 'part' of an actual, real object, that substantiality of the object, the structure, and the singularities, that endure as the object undergoes transformations at the level of local functioning and its various manifestations (actualisations). In object-oriented ontology (Bryant, 2011, and refs. therein), being is regarded as composed only of discrete entities or substances. Substantiality of objects is not a bare substratum but rather an absolutely individual system or organisation of powers. In this outlook, there are neither good or bad, 'stylish' or 'kitschy' works of art; only those – let it now be expressed in the language introduced in the above paragraphs - belonging to this or that grouping of parameters and to the corresponding 'genealogical line' of 'order generation'. And so 'qualities' are not regarded as something that an object possesses, has, or 'is' as an 'autonomous' thing out there, but rather as acts, verbs, vectors of something an object does, i.e. how it is recognised as such or 'registered' at the site of action or experiment. Every entity

(object) translates the other entities to which it relates, yet these translations must be distinguished from the entities that are translated. Entities are 'constitutively withdrawn' from one another. This withdrawal is a structural feature here, whereas in Kant where the in-itself is unknown or withdrawn it is the price he must pay for preserving in his scheme the precious 'free will'.

#### 5. The Educational Challenge

It has been argued that the methodological and structural challenges peculiar to meta-modernity be best addressed in a bottom up, context-driven, archaeological-genealogical method inspired by ideas of Walter Benjamin (e.g. Benjamin, 1999, Buck-Morss, 1982) and designed to offer students an opportunity to actualise better their specialist skills by learning to formulate problems in conditions which require them to interrogate and synergise disparate knowledge systems. Such structures are peculiar to the functioning of material production and human organisations of the maturing digital age. In this approach, the emphasis is on personal choice and responsibility for what is being done and for what purpose. It is to identify and nurture a personal portfolio of skills, and of ownership of one's experience of life and decision making. Only then can the student identify and take for his or hers own a worthy employment niche. This is a way to bring about a shift from the prevailing top-down, regimented instruction structures fenced off by traditional subject boundaries to a bottom up, step like, student-tutor centred iterative learning process grounded in but reaching beyond the conventional academic subject. The methodological guidelines in the context of the British Educational system, or rather in spite of it, have been developed and successfully implemented, be it on a modest scale, in the course of the last two decades or so (see Jaros and Deakin-Crick, 2009, Jaros, 2009, 2014a and b, 2015).

This is not a cry in wilderness. "A sea change is needed. What would this be? ...interdisciplinary perspectives at least as part of the breadth but also possibly of the depth (of education)....to offer an approach to interdisciplinarity through a recognition that there are concepts that span traditional disciplines....(and) recognition of the ...knowledge explosion..." (Wilson, 2010, p.114). Thus spoke vice-chancellor of a large British University!

The aim here is also to provide a more sustainable and effective purpose to the machinic curriculum delivery and testing currently promoted by influential corporate and governmental organs as a way of meeting the new production and management requirements (Blömeke et al, 2013, Jaros, 2014a). The time and money saved by shifting the delivery of routine parts of the syllabus to judiciously designed presentation of texts and demonstrations enabled by interactive features of digital technologies should release resources for novel, student – tutor intensive structures vital for living up to the aims advocated here. Although the technical part of curriculum delivery facilitated by well chosen software packages may turn out to be adequate or even desirable for certain aspects of education, it is unlikely - and certainly not sufficient - to instil in any 'knowledge worker' the sense of

creative freedom, independence, and personal motivation that are the most desired outcomes of any working practice. Still less is it likely to bridge the gap between the exhausted by it much entrenched post-World War II compartmentalisation of Academia and the demand for competent problem formulation in a constantly evolving, trans-disciplinary task environment. Furthermore, the quasi-privatisation process driving the new machinic structures threatens – if adopted without critical evaluation ensuring the presence of strong, innovative tutorial practices – greatly to weaken the public sphere of knowledge and its guardian, the modern University.

## 6. Conclusions

It has been argued that one of the outstanding intellectual and practical tasks today is to instil into knowing and being, into work practices the way of seeing decisions as selections whose outcome depends on limits of applicability of the chosen variables spanning what is always necessarily a finite domain in space, time, and topic. This is not about turning everyone into a walking encyclopaedia but about a change in attitude to connecting and making sense of things before us, about appreciation of the 'order of things' of today that comes with bottom up ownership of work and experience. For that is the necessary condition for recognising that the independence making it possible for people to do what they can and want to 'own', in a shared public space, is the ultimate measure of value.

Given the current state of affairs, it may take some time for this message to find a larger following in educational and managerial Establishments, and even if or when it does, it will take much longer to live up to it. However, methodological novelties brought into life by the likes of Piketty and Morris have opened a research space in which the new generation of thinkers more comfortable with digital technologies and deeply sceptical of doctrinaire impositions can begin to recast our cultural past and present into transparent genealogies of independent order generation and actualisation. Many have recently argued with conviction that demand for such innovators will be insatiable (e.g. Eshun, 2004, Morris, 2010, Kissinger, 2014)! Indeed, the spectacular ups and downs in sciences, arts, and social systems at large between *circa* 1850 and 1950 can be described as victories and failures in innovative ways of 'measurement and quantification' - as shown in some detail, for example, in the recent study of the so called Vienna Circle (Sigmund, 2017). Here then is a call for creative conceptualisations, and yes, speculative experimentations in search of novel means of selectivity and symbolisation - be it under very different terms compared to those from the 'pre-digital' systems of thought.

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