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SPIRITUALITY IN THE COGNITIVE PROCESS AND THE REGULATION OF DIGITAL BEHAVIOUR: HUMAN ETHICS AND MACHINE LEARNING

Duchowość w procesie poznawczym i regulacji zachowania cyfrowego: etyka człowieka i nauka maszyn

Abstract

Regulation models based on the human cognitive systems and ethics are embodied in social institutions. Among the issues of the processes of urbanization, secularization, anti-war speeches, the fight against poverty and discrimination, spirituality became an important subject of research especially in the Post-Soviet sociological space, where the common elements of the social development were widely represented in different kinds of research, but the impact of religion and spiritual activity was underappreciated and was almost not studied. Some of the approaches and terms were borrowed from the Western sociology, as well as the liberal approach of market economy was initially studied on the basis of materials copied from American and European textbooks. Very soon scholars discovered that the notion of spirituality had different connotations on the territory of the former Soviet republics, where the hunger for spirituality was inherited (Mariański 2009: 149-179) since the omnipresent and ubiquitous communist ideology concerned the social life, including the religious activity of the populations of the former Soviet Union regions. Spirituality also began to awaken interest of social science as the knowledge of the organization of social life. Since the USSR collapse, the concepts of spirituality as well as new spirituality become an important novelty for the sociological science, sociological reviews and conferences. At the same time, spirituality started to be used as an argument in the political and economic discussions that provoked the critics of this concept among scholars as well as inspired scepticism in society. The presented paper deals with the cognitive approach and combines the sociological approach with analysis of spirituality and the economic analysis of the intellectual systems and computing machines, especially, the “cognitive” processes of machine learning with the use of

software for human beings to determine the requirements for the regulation mechanisms of the behaviour human beings and machines in the digital era.

Key-words: values scale, social regulation, cognitive modelling, intellectual analysis, intelligence.

Streszczenie

Modele regulacji oparte na ludzkich systemach poznawczych i etyce są zawarte w instytucjach społecznych. Wśród problemów procesów urbanizacji, sekularyzacji, przemówień antywojennych, walki z ubóstwem i dyskryminacją, duchowość stała się ważnym przedmiotem badań, zwłaszcza w postsowieckiej przestrzeni socjologicznej, w której wspólne elementy rozwoju społecznego były szeroko reprezentowane w różnego rodzaju badaniach, ale wpływ religii i aktywności duchowej był niedoceniany i prawie nie był badany. Niektóre z podejść i terminów zapożyczono z socjologii zachodniej, a także liberalne podejście do gospodarki rynkowej początkowo badano na podstawie materiałów skopiowanych z podręczników amerykańskich i europejskich. Bardzo szybko uczeni odkryli, że pojęcie duchowości ma różne konotacje na terytorium byłych republik radzieckich, gdzie odziedziczono głód duchowości (Mariański 2009: 149-179), ponieważ wszechobecna ideologia komunistyczna dotyczyła życia społecznego, w tym religijnego ludności byłych regionów Związku Radzieckiego. Duchowość zaczęła być również rozpatrywana przez nauki społeczne, jako wiedza o organizacji życia społecznego. Po upadku ZSRR koncepcje duchowości oraz nowej duchowości stały się ważną nowością dla nauk socjologicznych, przeglądów socjologicznych i konferencji. Jednocześnie duchowość zaczęła być wykorzystywana jako argument w dyskusjach politycznych i gospodarczych, które spowodowały krytyków tej koncepcji wśród uczonych, a także wywołały sceptycyzm w społeczeństwie. Prezentowany artykuł dotyczy podejścia kognitywnego i łączy socjologiczne podejście do analizy duchowości z analizą ekonomiczną systemów intelektualnych i maszyn komputerowych, w szczególności „poznawczych” procesów uczenia się przez oprogramowanie dla człowieka w celu określenia wymagań regulacji mechanizmów zachowań ludzi i maszyn w erze cyfrowej.

Słowa kluczowe: skala wartości, regulacje społeczne, modelowanie kognitywne, analiza intelektualna, inteligencja.

Introduction

Cognition represents the individual process of assimilation of knowledge that is widely and deeply influenced by social factors. The balance between rational knowledge and beliefs is determined with the characteristics of society, community and small groups, e.g., family. The spiritual and religious aspects of knowledge have different weigh according to the moment of the human history (Toffler 1990) and the civilization (Huntington 1996) determining essential social regulators, such as values scale and norms. The cognitive research is involved in the study of both temporary and spatial factors that influence the role of the spirituality as a form of cognition and cognitive activity.

The cognitive process includes both rational and irrational understanding. The Aristotle tradition of defining knowledge is oriented to the search truth without direct dependence on the measuring as the only exclusive form of rationality. The modernity and post-modernity are directed to the more concrete aims, and the notion of knowledge is re-defined with intentional and instrumental aspects – as an adequate reflection of reality and capacity to benefit from it. The knowledge for the post-modern humans is a tool for the realization of goals and interests. This approach leads to the technological transformation of the regulatory mechanisms.

Spirituality has been the subject that is examined within the sociology of religion, especially, in the Soviet science, taking into account that the Soviet sociology appeared as a recognized scientific knowledge field only about half a century ago and had proven its legitimacy as a science in 1970s. This historical peculiarity of the sociology in Russia is reflected into the quite fresh vision and understanding that the sociologists of the modern Russia have towards the spirituality as the sociological analysis issue. Only in 1980s-1990s the religious and spiritual issues became the legitimated subject for the sociological research for Soviet and

post-Soviet Russian sociologists who have obtained the right to publish results of theoretical analysis and practical surveys centred on the spirituality.

The new identity of a post-modern personality (Giddens 1991) required the inclusion of the both rational knowledge and spiritual experience as unavoidable components of the real human life. If historically the term of spirit and spirituality is related to the traditional religion, it obtained a new life with the sociological research and analysis within the post-modernity.

The modernisation and post-modernisation (Giddens 1990) have had a significant impact on the priorities between the positions of rational knowledge based on repeated blind experiments and the sacred knowledge obtained through the direct cognitive activity and spiritual experience. This pendulum moves between the two edges, the process of disenchanting of the society, described by M. Weber, and the new sacredness of specific practices representing the attempts of a human being to satisfy meta-motivation for existence of personality. This swing of the pendulum passes through the elimination of boundaries between the phenomena which previously were understood as the sacred and the profane. This process is realised within the cybernetics, the information and communication technologies (ICT) progress provides the mankind with new possibilities to digitize everything – to create the Internet of things, IoT, and Internet of Everything (Jouret 2013), IoE (Banafa 2016).

The digital economy of knowledge is a specific era which raises the questions of regulation applicable to making decision by the machines that should include non-calculable ethical dilemmas and human reasoning with the opportunist options and long-term consequences. This bias forms the essential requirements towards the algorithms written for machines, and the sacred as a specific human element of the cognitive process is to be included as imperatively untouchable for intellectual systems of neuron networks for the treatment of data procedures.

The notion of artificial intelligence demonstrates the actuality of the question about the regulation between the sacred and the profane for digitized world and the concrete concern of inclusion of all components of cognitive process into the machine functioning, the taboos and sacraments are to be applicable to humans as well as to machine behaviour. The sociocultural orientation to the pragmatism of activities and adaptation to government decisions, Eurasian integration and the development of an innovative economy, to macroeconomic shocks (financial and economic crisis of 2008-2010) are significantly reflected in the changes in the interest to the spirituality research as an issue for the cognitive analysis.

The purpose of this paper is to discuss (a) the functional role of the regulative mechanisms' construction aimed to determine the digital behavioral models and to investigate (b) the concerns of the substantial regulators (values, motivations, spiritual and ethical issues) that orient the human cognitive process and creativity as well as machine learning. The article examines the spirituality as a moral tool to overcome the insufficiency of human beings.

Spirituality for the cognitive process

The analysis of sacred as anything that is perceived as inviolable, inaccessible and unalienable demonstrates the expansion of sacralisation towards broad interval of the values scale, including human rights, such as equity, gender equality, racial non-discrimination or the right for freedom. The self-identification of a person as belonging to a community also refers to the sacralisation of consumption goods that have chance to be perceived as a criteria of being according to the symbolic goods (such as Apple people or geeks).

This inclusion of non-sacred into the category the sacralised phenomena or objects reflects the deeper search for a mystery, but also represents the economical forms of social regulation, e.g., the sacralisation of human rights helps to avoid the efforts to explain the socially rational solutions in every case of discrimination; the sacralisation of purchase permits to avoid the costly process of choice in the broad market between hundreds of similar items. The sacralisation of the secular pervades consumerism (Rinallo, Scott, Maclaran 2013) at many different levels, including the products and services being offered, consumer experiences and practices, branding, and the values that products communicate. All these forms – traditionally considered profane – are

now viewed as crystallizing divine energy, with consumption gaining “sacred status in our consumption oriented and hedonistic society” (Belk, Wallendorf, Sherry 1989: 9).

The transformation of a logical reasoning into a sacred decision (only one possible option instead of multiple choices) helps to save transaction and deliberation costs. But this rationality is not able to describe the deep personality motive for growth, mystery, crossing borders of her/his existence or for penetration into the essence of life, that has obtained the title of “spirituality” as an opposite concept to the material world of accessible goods and saturated physical needs.

Georg Simmel is considered to be a pioneer in the study of the relationship between religion and spirituality (Motak 2012: 109-115), he distinguished the differences between religion and religiosity (Varga 2007: 145-160) and demonstrated the failure of the institutionalised traditional religions in their organisational form to satisfy the new needs of people. M. Weber describes modernisation as the following process: “The fate of our times is characterized by rationalization and intellectualization and, above all, by the disenchantment of the world. Precisely the ultimate and most sublime values have retreated from public life either into the transcendental realm of mystic life or into the brotherliness of direct and personal human relations” (Weber 1946).

The notion of spirituality in the modern sense often covers all aspects of life and describes a new style of post-modern spiritual culture: this style of life organization is democratic, accessible, individualist and goes beyond the boundaries of institutional religions, therefore often non-church. This spirituality respects nature and is characterized by a deep sense of connection with the world; it represents an inexhaustible source of faith and willpower (Mariański, Wargacki 2012: 26). The new spirituality is connected with desecularization processes as a specific symptom of the sanctification of the individual (Mariański 2010). The new spirituality is enrooted in the popularity of New Age movements (Wargacki 2000: 451-486), which appeared in Western culture at the end of the 1960s (Wargacki 2008: 290-304). The eastern European societies, including the post-Soviet Russia, have had the access to this plurality since the collapse of the Soviet Union.

“Spirituality of cyberspace” or “electronic-digital” spirituality is a special topic that is not addressed here. We only note that if the hippies of the 1960–70s. were “anti-high-tech”, then today the “new generation” (“New Breed”) is super-technological (“super-high-tech”). And cyberspace is endowed with such properties as mythical, magical, ideal, intangible, unearthly, etc., which represent the path from the sciences and technology to the sacred and spiritual (Leary 1994). In the late 1980s cultural actors of the era of high tech industries launched the term New Edge to refer to their brand of New Age spirituality (Zandbergen 2012).

The intellectual systems can replace human activities in very numerous and diverse kinds of activity (Chen, Chiu 2014). Spirituality and creativity are the components of cognitive process for human beings who want to be involved into social, political or economic activity to the prospective of the future decades. The pressure of the economic intelligence fulfilled by the computing techniques and information technologies (Sigov, Uvarov, Pokrovskaia 2017: 216-219) forces people to change their priority from the rational cognitive practices to the mystic or transcendental cognition. The intellectual analysis helps to discover and develop the creativity (Ababkova 2018: 10-18) and to enhance the human dimension with the capacities to build the cognitive model of the future self-realization.

Regulation mechanisms in the digital era

The computing capacities achieves the omnipresent and ubiquitous scale, the parameters of the science data treatment allow managers and regulators to create automated tools of regulations. This deep revolution produced by cyber-physical systems and smart sensors and devices transforms the role of a regulatory body from personal involvement into the decision making process and decision implementation – into conceiving the rules and anticipating the consequences and opportunistic options. This transformation changed the core element of the value creation chain from physical human labour into intellectual creativity, from monotonous routine to expertise for machine learning and search of solutions for non-standard tasks. This evolution from traditional social life into digital economy of knowledge combines both – the new methods to treat data (digitizing) and new models to create value (the knowledge of the economic model and sharing economy).

In the context of innovative growth, of digitizing and knowledge as the core factors creating value, the regulation mechanisms and regulatory options play specific role to adapt the different activities for the purposes of human well-being, physical as well as spiritual. Some super-individual common rules are required to give this two-fold constraint-based decentralized process a social aspect and society-wide validity within a given governance system (Ülgen 2013: 172-187). Therefore, relations rely on private market decisions, as well as on extra-market public rules, and develop through a permanent tension between these two sides (Ülgen 2014: 257-277).

The basic dilemma of regulation in the field of creative knowledge is the divergence. Invention, discovery or innovation are enrooted in the spirit that difficult (or impossible) to formalize and to transform into computing. The spiritual and creative activity relies on the capability to reject standard solutions and to find or to build the new visions. Regulation consists in design, elaboration and implementation of rules to choose a behavioural model in a specific typical situation. This basic fundamental contradiction is realized in the policies and rules aimed to support the research, the innovative growth and digital goods and services as new business models as well as the influence on the social structures and processes, from the choice of educational path by the youth and to the governance of the population aging with the search of new meanings and activities for the elder groups of people, with their experience and their sense.

The personal knowledge is open and flexible, unlike artificial intelligence, spirituality represents the advantage of human beings compared to computing machines and intellectual systems, but the human cognitive process also has a more stringent system of priorities that are presented in the form of regulation (e.g., smoking can be the norm of behaviour, but it is condemned and fined or taxed, excise taxes) as well as ethical elements and boundaries.

The technical progress allowed mankind to satisfy the majority of the basic needs, austerity is no more justified technologically, but it is still required through the governmental methods. Regulation in a wide sense represents the human mechanisms to postpone the satisfaction of one kind of needs and to prefer the others, more vital ones to saturate.

The governance as a new concept for the public administration and social management reflects the idea of the consumption society with lack of needs and abundance of products that requires the new degree of responsibility to take and new scale of tasks to solve on the global level of mankind and on the local level of everyday existence.

The regional and global integration sets goals of the harmonization between national states, between the societal structures, social groups, even between companies and corporate units (collaborative strategies dominating over the aggressive competitive fight). The higher scale of projects to fulfil require the wider resources, which explains the attempts to harmonize the global tax regulation as well as the approaches to govern and to drive the changes and innovative processes in high technologies and traditional sectors (such as agricultural "green revolution" and digitizing of connected factories), in economic models (sharing economy, gigs and we-economy), in finance (cryptocurrency, social media as credit-finance flows infrastructure) and in communication (smart devices and mobile internet access from everywhere, IoE, Internet of Everything – van der Meulen 2013). The digital economy of knowledge requires deeper and wider harmony of rules implemented to administrate the functioning of society and to conduct the realization of the societal sub-systems, first of all, for business activities regulation purposes. The resources and markets represent the new parameters of regulation that are crucial for any organization.

The Weberian approach to the rationalization of the societal life is embodied today into the intellectual systems of social rating (in China) and in the big data technologies (treating de-personified and personal information) used for contextual and targeted communication.

Primarily, the regulation of any kind of resources is changing today. The business creation is the value creation chain that relies on the specific social organization, life quality standards and human behaviour models. The regulation mechanisms are rationalized and cover different fields, the regulative methodology is transformed from the deontological and emotional issues to verbalized, articulated and widely discussed questions, such as tolerance and its limits, discrimination avoidance and privileges for specific categories of

population, etc., that were presented in the form of informal religious and ethical ideas and now are written in the legislative texts or in codes of corporations, industrial organizations and associations.

Secondly, the essential goals and purposes of regulation are mutating with the enhancement of technological capacities and under the evolution of the ability of digital solutions to remedy the problems, the question arises of the priorities between tasks to be solved. Moreover, several situations need the specific human reasoning and neuron-networks or artificial intelligence are not able to make a valid decision, i.e., the ethical dilemma of the intellectual property (preference to reward the author or to give access to everyone, in the case of generics saving life of people but de-motivating the pharmaceuticals to search new medical solutions for other heavy diseases), trolley dilemma (intellectual system is not able to decide to save the passengers of the auto-driven car or the pedestrians outside), or dotation dilemma (to support the most efficient or the poorest regions, countries, sectors).

Thirdly, the rationalization, information and telecommunication technologies development allow the governmental bodies to check every action and asset of any individual or company. The digital payment systems and the face recognition determine the possibility to monitor all the physical movement and the transaction of values. These new capabilities are contradictory to the lack of the formal rules that would be justified, legitimized through referendums or other civil procedures. These arguments determine the need to examine the new stage of the regulative mechanisms and new foundation for the regulatory bodies legitimacy, the content and justification of the rules implemented.

Lacks and failures of self-regulation and the need for transcendental

The artificial intelligence systems made some crucial errors in recognizing the meaning of photographs (the case of the recognition of a photo of an Afro-American man as a picture of a gorilla made by the neuron network analysis) or persons for a passport (in December 2016, 22-years old engineer Richard Lee could not update his national passport, as the robot in the New Zealand face recognition system rejected the photo because of „closed eyes”) (Ababkova, Kostin, Pokrovskaia 2017: 71-74). Another example concerns the expression of verbal analysis of words and thoughts presented by artificial intelligence in the form of bot conversation: in 2016 Microsoft deployed TayTweets, a Twitter bot trained through casual conversations on Twitter, with the large volume of textual data available every second, but the robotised agent started to tweet misogynistic and racist remarks in less than 24 hours (Comi 2018). The physical move also represented a problem, when in March 2017, the first Amazon store in Seattle was to open, operating only on the basis of sensors and smart-phones, but the number of errors required more time for debugging, until the May 2019 the store is still not presented among the retailing competitors.

These examples raise the question of substantiality of exceptions in the real life and taking human priorities into account. Despite the constant and rapid machine learning, the neural networks and smart spaces are not yet able to replace human beings in some cases, since either they incorrectly prioritize or are unable to interpret the specific conditions.

The spirituality of the New Edge imagines the sacred potential of computer technologies in harmony with the consumerist ethos of the Silicon Valley industries Zandbergen²⁰¹²). The mechanisms of social regulation implemented by the machine way, today show a significant error, so, cognitive research continuously requires the presence of, supervision by (Ülgen 2017: 332-340), and the intervention of public institutions and State policies and incentives. Three arguments explain why market-dependent self-regulation (micro-prudential regulation) is not a relevant way to organize sound systems:

1. self-regulation aims to improve the safety of individual operations, and relies on private information and rent-seeking rationality, while the data and actions needed to ensure society-wide stability are beyond the reach of individuals. The aim and scope of the individuals' self-regulation is not the same as the prerequisites for the societal stability;
2. in self-regulation, the separation between the regulator and the regulatee is not held, which provokes conflict of interests since the external objectivity of the regulator loses ground based on the interests of the regulatee. The possible confusion between the judge and the judged is not consistent with

economic stability as a macro-economic concern. The conflicts of interests undermine the capacity of regulatory system to deal with instability and weakens the social reproduction schema;

3. the confusion does suffer the fallacy of composition since micro-rational behaviour does not readily generate macro-rational outcomes. Even if private individuals do behave in a rational way when trying to improve their situation, such a behaviour does not result in an optimal state on a society level and may harm society by weakening institutions. The example from the digital market relates to the aggregators of taxi services, when the decrease of prices and absence of State regulation leads to the poor quality of service, the taxi driver who has insufficiently slept makes the fatal mistakes on the road and kills people at bus stop.

These arguments explain the necessity of the regulatory activity on the digital markets and over the digital business models. The normative effectiveness depends on the credibility of the regulator and on trustful relationship built between the regulator and population. The trust is based on a clear and unambiguous regulatory mechanism (Golohvastov, Pokrovskaia, Snisarenko 2016: 255-263). The development of Blockchain as a system of computer algorithms and of Ethereum as a complex contracting system allows of creating non-personalized regulating algorithms (Pokrovskaia 2016: 271-275) in any field of transactions. A common gauge in such regulatory systems can use a crypto-currency. But the meter can also be absent, e.g., when donating housing through the couch-surfing system, where apartment owners invite foreigners to live for several days for the sake of interesting communication and acquaintance with a national culture. The subjective evaluation made by users („likes” and „dislikes”) can serve as a gauge, and with the development of the recommendation system. The „likes” can acquire a meaningful nuance, e.g., „important”, but „regrettably”, in the case of a report of a terrorist attack it is unacceptable to press a single button „Like” at the network vC, vKontakte, but one can use emotionally differentiated likes in FB, facebook.

At the same time, reality is infinitely diverse, nevertheless the norms reflect statistically significant frequencies of behavioural models and the following sanctions (positive and negative): the desired behaviour is rewarded, undesirable for society, group or individual – condemned and punished with fines or exclusion from the group (up to imprisonment). The contradiction between the machine and human qualification of behavioural models and selection of sanctions (positive or negative, or neutral) can be deepening in time, if the machine learning and fog computing are developing without a conceptual analysis.

The regulation on the basis of intellectual analysis and human ethics

Criteria for the effectiveness of regulatory mechanisms as a machine function should include the following elements:

- the ability to operate with exclusions,
- competence to hold the adequacy of scale of values and priorities,
- the adequate system of hierarchical submission of machines to human beings as experts able to make decisions.

This set of criteria can be used to develop a sophisticated system of regulatory mechanisms with the tool of neuron technologies, artificial intelligence, blockchain, the controlling instruments of fog computing. The global system of fair tax relations as system of payment for services rendered by State to population should be based on a set of elements:

- a system for assessing the cost of the State services for the population (e.g., what is a real cost of justice or equity);
- a transparent system of choice based on direct or weighted voting (necessity to develop a model to select and certificate the experts);
- a detailed analysis of exceptions that require reasonable intervention of authorized persons (experts).

The renewed regulatory architecture is to represent the new relation between the actors in societal system, the functions of the regulation are already partly transferred to the smart-phones, smart houses, cities and even smart boilers. The technological tools development outstrips the analysis and understanding of the regulatory system.

Regulation mechanisms are based on the legitimacy of rules that meet basic values (the coherence values and regulatory efficiency), and on the transparency of their implementation, which can be interpreted as the effectiveness of rules-driven normative regulation. The development of ICT (information and communication technologies) permits to control whether the process is carried out correctly and to assure the total coverage of application of rules, providing the adequate normative (i.e. legal) regulation.

Value-driven regulation, ethics and axiological issues require a theoretical analysis for assessing the correctness of situational law enforcement and for understanding and flexible adaptation of the mechanisms for calculating values in exchange, in particular in the case of taxation as a model of the State's service function. The economic subsystem within societal system fulfils the specific function to increase the efficiency of meeting human and social needs. The initial parameters for economic activity include the scale of values (Pokrovskaja 2012: 287-292) and the structure of motivation that determine the content of the rules and norms.

Conclusion

Value coherence of regulation is changing in the course of need reduction. The consecutive satisfaction of the basic human needs leads to the transition to actualization of different types of motivation (Pokrovskaja 2014: 21-38): from basic motives for survival (saturated through industrial production) and deficiency needs (social needs met on the basis of information and telecommunication technologies and in particular through the expansion of social networks) towards meta-motivations (personal self-realization and actualization of personality).

A solution to improve the accuracy of the value measurement is neuro-communication technology, which allows of measuring directly the physicochemical reactions of a person (Ababkova, Pokrovskaja 2016: 93-99), this reduces the probability of false estimates. The growth and evolution of neural networks (self-learning artificial intelligence systems) in combination with neural communication can ensure the achievement of a sufficiently high level of accuracy in assessing the true significance. At the same time, neuron technologies are not capable to take into account their own internal censorship of the person and rational prioritization. Rather than destroying the sacred universe, the cultural logic of post-modernization "spawns its own religious meanings, unacknowledged spiritualities and magical enchantments" (Aupers 2010). The ethics issues, the control of sufficient tolerance, the political and religious multicultural environment and inclusive space for people with special needs are not included into statistical determination of "normal", but they represents significant exceptions for real human reasoning and life.

Development reflects an objective process of internal, consistent quantitative and qualitative change in the physical and spiritual forces of a human being. Personal development implies an increase in the readiness of the individual for an actual social activity based on spiritual and moral orientations. This reasoning implies the education of personality traits – useful for self-valuable society. The process of personal development of a person in the workshops occurs as a result of social interaction with other participants, accompanied by a rethinking of life experience. The collective form of education provides just such social creativity. The intellectual analysis is not able to replace the humans, but is helpful to build the cognitive map and the cognition model for the physical and spiritual self-realization every person.

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