Diversity regulation for industry 4.0, artificial intelligence and smart cities

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Post-modern society sets the complex multi-facet intentional context of the search for harmonic combination between efficiency and humanity. The sociological and economic analysis of the efficiency is built on the basis of the human beings' competences and motivation. The information and communication technologies (ICT) emphasize the efficiency of data management and of regulation of the information flows. The economic and management are concerning the regulation of the efficiency of business models and of «network» or «chain»' schemes of the value creation. The diversity at the «end» of this chain, from the demand for customised products and services, requires the diversity at the «beginning» of this business-model, from the inventors and innovators until the controlling system inside the enterprise and outside it with the concerns of different stakeholders. The convergence of technologies and of human being lives should be subject for regulation to assure the sustainable development.

Keywords: regulation mechanisms, diversity, knowledge transfer, governance, innovative infrastructure, artificial intelligence, post-modernity, information society.

The digital economy is creating the new regulatory mechanisms that are largely based on human values and ethical views and can not be transferred to the machine, but are to be specified as the key parameters and hierarchical criteria' model. Digital culture includes the regulative system based on decentralized mechanism of holographic storage and multiple duplication of information. Fog-computing combined with neuro-communication allow the total digitization of physical reality. Ethics' algorithm inscribed into technology can produce the concerns of incomplete cyber-reflection, contradiction between the human virtual symbolic imaginary or creative intelligence and digitized knowledge of responsibility for ethics' implementation.

The regulation of activity within the augmented reality, where the imagination or knowledge is mixed with the physical world, the rules of transforming the natural components of the environment and of the human beings themselves (such as exoskeleton or prosthesis) represent the ethical part of the research subject.

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Regulative mechanisms are studied in sociology and economics on the basis of human activity in the real world and of the making decision process carried out by «real» people. The evolution of the information and communication technologies (ICT) and the digitalizing management produces the two polar approaches towards the regulation:

- the rules produced by IT-engineers reflect the technically driven regulation. This kind of automatic high-tech regulation can be improved by adding some lines into a programme' code. The speed of such a «reform» is incomparable with the long and heavy bureaucratic procedures of the «real» legislation». This technocratic approach under the name of «Google doctrine» reflects the dominance of the logic of efficiency;
- the human-oriented approach put the deep doubts and asks the question on the border for machine' involvement into the making decision process –

what are the decisions which should be made by people, and what is the machine' responsibility for decisions made at the place of human being (i. e., the «smart house» concludes that the inhabitants of the house are sleeping, and it reduces the heating, but someone of people is sick and is not willing to decrease the temperature in the bedroom). The limits of the responsibility of a driver or owner of an auto-driven car represents the unsolved practical example of these discussions, that impose restrictions on the auto-driven automobile industry. The similar questions can be arisen for the smart houses, the choice of targeted advertising, the spam' classifying system at email-hubs or smart-phones' reaction to the sms-spam.

Since 2016, 1 Oct, the domain names in the Internet are regulated by the non-governmental organisation ICANN (Internet Corporation for Assigned Names and Numbers). The Ethics Codes are drawn up for applying neuro-technologies within marketing research and neuro-communication for the direct transfer of knowledge, experience and emotions. The economic and business intelligence tools are developed for the analysis of competitive market, but also for the study of the pre-elective positions and opinions, for the search of the best formula to communicate with the voters. The augmented reality represents a digitised imagination (in the case of games such as pokemon go) or a saved knowledge (in the case of the QR-codes, quick response, matrix codification for getting data on sightseeing, hotels and restaurants, fuel stations, etc.).

The theoretical research of regulative mechanisms of individual behaviour for an efficient governance of creative and innovative processes starts from the positions of enterprise and of public administration. For the governance on a national or regional level, the question of incentives for innovative activity arises. For the private business, the regulation is needed to involve into the producing cycle the individuals, the personalities with their competences and talents.

The research of local regulation within a community is concentrated on the analysis of the clustering in the post-industrial economy. The article analyses the Russian and Chinese experience in encouraging the R&D and innovative activities of private companies and in the implementing of governmental direct financing of the scientific research on the basis of the spatial economy. The paper analyzes the efficient coordination of the local infrastructure for the innovation growth in the framework of clustering and territorial rapprochement of value creation chains and R&D, as well as the academic education as an optimal form of integration of professional competences training. In this prospective, the clustering represents an efficient solution to combine the logics of monopoly on uncertainty zone (intellectual property protection) and intention to disseminate the results. This combination can be realised inside a close group of associates and colleagues, within a network of confidential personified relationship. The expansion and enhancing of the educational infrastructure, including the academic networks of the universities and scientific institutes, accelerates the exchange of knowledge within' in an area.

The substantial impact on the content and on the tools of the governance and regulation of private enterprises' R&D activities is related to the virtual business-models. The OECD report on digital economy, the national documents in Russia and in China take into account the particular issues for governance and regulation within the virtual enterprise and cyber-economy.

The innovative growth is based on private initiative and social change related to the new priorities. The core question for the public governance examines the possibility to influence with the regulative tools on the activity at both facets: on the creative process of invention and R&D, and on the innovation' implementation. The first edge relates to the intuitive magic process of the discovery of new elements of the Universe, subtle search of new answers and ingenious asking new questions. The second angle concerns the entrepreneurial commercialisation of new products, the new needs' to draw out, more than new product to contrive for satisfying the «old», previously existed market' needs.

The efficient innovation can be produced within a specific context, including the institutional background, modernisation policy and regulative tools oriented towards the support of R&D and of implementation of the research results into the producing process. The recommendations includes:

a) determining the goals of the national innovative development that depends of the targeted strategic position of the country in the world economic system;
b) enhancing the regional and local governance and development of the infrastructure for research and innovative activity;
c) deepening the academic institutions' involvement into the R&D activities, with the improvement of the intellectual property management, patent box and other tools to fix and to reward the contribution done by the educational and scientific organisations;
d) building up the comprehensive regulation of the knowledge' production, transfer, exchange and development within the information society, with the use of the new options of the ICT and cognitive analysis, economic and social intelligence instruments.

The chosen methodology within the studying approach depends on the goals set:

- the theoretical exploration of diversity' regulation includes the hypothesis of a connection existing between the aim of regulation and efficiency of regulative tools chosen. The neurological technologies (neuro-economics, neuro-marketing, etc.) measure the efficiency on the level of individual perception, but the essential question refers to the making decision process which is represented in the real behaviour, at the level of an individual or of the mass behaviour (of a market segment, of a category of voting people, of a community of inhabitants solving their local problems);
- the proposal of development of regulative tools in the field of the various behaviour regulation, including the production or transfer of knowledge, the creation and communication of values, is drawn up on the basis of

the verified relation between human capital treatment and efficiency of knowledge' creation and transfer.

The theoretical analysis of the regulative mechanisms of the diversity reveals a complex set of differences among humans and inside the symbolic world of ideas. This study finds the use of the diversity within the economy of knowledge and in the virtual world of ideologies and beliefs.

The diversity lies in the foundation of the flexibility and gives the substance for the development. The Internet as a system of instantaneous communication to transfer knowledge and experiences and the computing tools for the world digitalization face the complexity of the real physical life and help to cope with various multifarious social relations.

Semantic machine-to-machine communication enables the flexible mode of production with decentralised control. The digital economy creates cost-efficient ways to allow low-volume and high-mix producing smart factories. This edge of the digitalization satisfies the demand for customised and individualised products and services. Fog computing assures the better connection of the digital environment to the personalities and the concrete needs of individuals, relating the targeted marketing proposals to the persons and their device, and not to the whole family IP address or the whole house consumption behaviour.

The cyber-physical systems (CPS) help to assure the effectiveness and productivity within the economy of knowledge and the competition for talents, with a better work-life balance, improved governance structures and human identity within the world of machines. The diversity for the technological process of production reflects the efficiency of the involvement of different people. The SAP Chief Diversity & Inclusion Officer, Anka Wittenberg uses the expression «Differently Abled People» for autists, in 2015 SAP on-boarded 100 colleagues on the autism spectrum, that it is a case of social responsibility but also as an economic and management pragmatic decision — «these people have a special talent for testing software, they don't lose concentration and more often find mistakes, this work needs the regular hours to read the lines, the most of people are getting tired too fast and are not remarking the errors» [1].

The financial crisis of 2008-2010 and the followed changes of regulative mechanisms affected the organizational management. The re-thinking of private freedom for competition and of commodity market' principles implemented in group relationship concerned the HRM elements (motivation, intra- and inter-organizational communication, performance measurement) and socio-cultural aspects of corporate governance.

The linear western mentality oriented to the growth and performance was locked in with the erosive effect of the needs' evolution that is inherent in the saturated consumption. The «lock-in» effect [2] demonstrated the path dependency on the level of the whole societal system: the linear reasoning is opposed to the creative innovation' model of growth. By consequence, the efficiency' logics leads to the lack of the results, and even the strategy of low cost with robotised technological process is no more able to help to achieve the previous scale of outcome for a company. On the level of macroeconomic study the low cost strategy adopted on the level of a country within the international division of labour does not produce the competitive advantage, due to the close economic embeddedness of the demand in the scale of wage. The demand is also connected to the marketing ruse associating «quality – price» in the customers' perception. The quality of products and services is more dependent on the organisation and economic culture, than on the remuneration. These effects provoke the deep interest to the inter-disciplinary research of the regulative mechanisms on the level of individuals as collaborators, as consumers, as autonomous economic agents within the digital business models, as free-lancers or as post-modern human resources.

The human capital' concept related to the investment logics is in contradiction to the intellectual products' creation and knowledge' transfer model, to ethics [3] and experience' economy [4] principles. The data transfer is organized in efficient way by the technological means, but the content' creation and the new vision of the previous situation represent the activities that are not yet to be accomplished even by the intelligent things and even the Internet of things.

The collision between the very deep roots of the psychology of human behavioural models, constructed on the basis of a concrete representative system (cultural, religious, ideological, etc.), with the profit-oriented maximizing function led to the breaking out of the struggles and battles, until the cyber-attacks and terrorism. The problematic field of the physical and psychological, emotional and intellectual security is enrooted in the communication failures on the macro- and micro-levels.

The communication is the core process in the economy of knowledge and of experience. The communicative skills determine the adequate perception of the interlocutor. Within the up-to-date development of the virtual space, the abilities of negotiating are transformed into a specific set of competencies of communicating with use of different technologies, gadgets and smart devices.

The humanity issues concern the substantial aspect of communication within the process of mutual understanding and ability to find a solution conforming to the interests of all partners taking into account the individuals' differences and competences, and the technological facet of the management of data flows and safety of intellectual assets and knowledge.

Since the middle of the XXth century, the information plays the important role as key resource for the efficient macro- and micro-governance [5]:

- on the scale of the national or regional regulation, the core aim is to assure the substantial edge of the content of intellectual products — the cultural and symbolic influence on motivation and on behavioral models' choice by the individuals and groups, the economic and social agents;
- on the scale of corporate management, the key information security concerns are concentrated on the technologies of knowledge transfer, value creation' chains or networks, of communication inside the corporate unit and outside, the transfer of organizational culture towards the environment.

The representation of this complex set includes the N dimensions, e. g.:

- the dimension of the pressure of the influencing and controlling tools: the different combinations of the «soft» regulative mechanisms — and the «hard» direct management;
- the macro-level' societal concerns, — and the micro-level of individuals and groups;
- substantial aspect (content of communication) — and the methods and techniques used to communicate the information;
- forms and levels of the information, from data to knowledge, the understanding of sense and the vision of potential prospective evolution and influence on external environment;
- the penetration of the intelligence into the creative process — from graphic design software toward the tools (e. g., «Prizma» application for treating pictures);
- subjects of the carrying out the communication process — human beings or intelligent tools (such as OK google, intelligent search engines, smart devices and Internet of things, etc.);
- the positions of the participants into the communication process: the equal interlocutors in the negotiation process, on the one edge, and the transfer of technologies, with the relationship on purchase of items which are transferred from author to client against the financial flow of payment, within the contract's obligations and strict requirements, on the other edge of the axe;
- the openness of the communication, including the space from the severe procedures to control the access to an information or data, technology, concept model, — until the total availability, with the phenomena of the «club filtering» and «collaborative» strategies [6] (in the theory of the gift-exchange economy), when the intellectual product is presented on the open sources, and every customer decides about payment or contribution, e. g., the newest songs and albums are accessible for fans, who pay the discretional amounts according to their free will to compensate the authors' efforts and to reward the pleasure got by the user;
- the human being' physical and psychological safety of the techniques and equipment used, including the threat of some marketing and advertising' hooks, i.e., the Freud' seeking for danger and risk that can push especially the young people to imitate any dangerous ploys from car' or snacks' advertising, cigarettes or non-alcohol drinks. This concern of safety includes also the physiological influence of the colors and frequency of a signal (line-locked frequency, critical flicker frequency), the forms and the dynamic movements in visual spot or the vibrations' rate in the audio announcements or communication;
- the marginal cost of the spread of communication' message, on the axe from the «zero» cost to communicate a message at a social media (twitter, fb, vc, etc.) to the logistics of information on the inaccessible territories (on small islands, during a walk in mountains, or to address people in poor countries or countries with severe political regime, especially, if they have no devices to access the whole internet, i. e., the Great Firewall of China);
- the combination of elements of monopoly controlling and market expansion dynamics. This aspect of economic security reflects the search for compromise between a creative chaos of market with an impeding function of the protection [7]. The security has usually the close connection with the braking activity of a physical, social, political, economic or technological mechanism, the very direct, but illustrative example is presented by the transport network, where the speed is limited with the physiology of a human body. The bureaucratic procedures play the similar role for the regulation' reforms because it forces to re-think any change and to check its potential consequences.

The representation of this complexity of data and knowledge, of diversity and innovation can be simplified to the 2 axes:

- the process — creation and production, innovation of the results of R&D, communication of new vision and knowledge to customers and partners;
- the level of the openness — the dichotomy from the intellectual property protection to the data flows' transparency and efficiency at the digital era of economy and society development.

The theoretical base, description, security concerns and examples are classified in the table 1.

Table 1

The basic elements of the open sources or fixed intellectual property according to the phases of knowledge producing process

	Creation, R&D, producing	Communication, transfer
Open source	Self-actualization concept of motivation, mechanisms of collaborative strategy and social (collective) intelligence. Engineers, programmers or other specialists are invited to take part to solve a technical problem or to improve a computing process. Free contribution produces law cost of the final result. E. g., open source (Firefox, Linux), the Russian car-producing of «ё-mobile»	Gift-exchange economy concept, mechanisms of collaborative filtering, reverse rule of payment (post-factum). Efficiency is based on the transparency to the background. Cultural and intellectual products are available for all consumers as a basis for the further human personality' or activity' development. Societal censure or moderators are needed. E. g., advertising, songs and albums in open sources
Limited access	Copyright on original works of authorship. Profit-driven linear logics. Efficiency is based on the monopoly: Patent and trade-secret protection limits the getting profit to a restrained number of commercial agents who have given resources for the intellectual creation. E. g., Industrial and military R&D, pharmaceuticals	h2h Economy model; knowledge-driven reasoning. Patents and technologies are transferred without the implicit knowledge and competencies that, to be efficient, require to invite the authors or experienced actors to inter-personal communication. E. g., trade of patents and contracts of accompanying their implementation

Source: prepared by the author with the cooperation of M. U. Ababkova [5]

The dichotomy of «speed – brake» logics in the construction of the post-modern society has a huge wave of tools, psychological and physiological (cognitive and affective impact, NLP, myths, meta-programming and suggestive design, etc.), of cybernetics and computing science (big data and analysis of human behavioral model, modeling of spatial and social-economic processes, etc.), with technological and engineering nature (ingenious protection systems to avoid errors and prevent intentional destroying actions), etc.

This problematic field sets three-fold system of goals for efficient corporate governance and regional regulation of the communication process:

1) to stimulate the intellectual production — the creative and innovative process, to involve more actors into the activity of the changing world. This element includes the safety of the rewarding system — the protection of intellectual property and the guaranteed compensation for the R&D or creation costs;
2) to prevent monopoly and to avoid conflicts;
3) to assure the evolution, leadership of a company or of a region in the global economic system.

The individual, corporate or national communication policies in the post-modern open regime of cultural and intellectual production, are to be built within the analysis of consequences of the transferred knowledge in the context of collective intelligence and cognitive mechanisms.

The discussions on the balance between the levels of regulation and market were revitalised with the financial crisis 2008-2010, when Europe attempted the restrictions on the individuals and companies. The maximal limits were imposed for the banking sector bonuses, the new mechanisms of the risk management were introduced for the investment activity of credit institutions.

The external regulation should enhance the internal rules of the corporate governance and business' societal responsibility policies. But in fact, in companies the opposite process is observed: the external and internal regulative tools «compensate» each other, and the level of the market ideology increase inside the organisations and outside within the relationship with clients and other partners.

The competitive strategies represent the more significant element in the organisation' development than the collaborative ones, — from both angles — inside, within the human resources internal market (especially, when companies are constrained to select people for dismissing), and outside, when the «fair play» rules between rivals are substituted with the aggressive war for customers, as well for cost leadership as for creation of new market niches (e. g., the e-sellers of services, especially, with sharing model).

At the same time, the correct use of the social or environmental issues and regulative «fair play» of companies permit to assure corporate development even at a predatory market on the basis of preference for regulative and social values, social responsibility plays the role of a specific competitive advantage. The collaboration and competitiveness illustrate the fluctuation of the role of transformation and transaction as two key sources for value' creation. In the digital economy, the networks open new possibilities to get profit from the transaction, but the eventual opinion on the transition from transformational type of economy towards a transactional one does not reflect the reality: the communication represents the way to transform the world of rules and symbolic environment for individuals. Within a transparent and open digital world, the companies will use the natural monopoly and scale' economic effect, but the real economic action will be based on individual choices and preferences, the value and normative regulation.

The path for successful corporate governance goes by the creation of new ideologies and symbolic universes, such as organic agriculture (Starbucks as a good example of exploiting this system of values) or authentic products, or the access to the new point of view at this world (such as use of the unmanned aerial vehicles, UAV, this new mass market for civilian-drone industry was created by Frank Wāng Tāo, who personally was fond of multi-copters), or quasi-institutionalised movements as Occupy Wall Street.

The transformational economy concerns the raw material and natural resources, but also treats the material that is generated by human beings — culture, symbols and values, perception and motivations. The creation of new vision of the universe is an example of the transformation of the angles of view, enlarging possibilities to get knowledge of the reality around. This new reality of sense and knowledge is oriented to the higher level of human needs, the cognitive economy uses the new methods and treats the new subject: the aesthetic perception and the understanding of the meanings, that are connected to the self-fulfilment.

The comparison of the transformational and transactional economies is represented below (table 2), the transactions disserve the social deficiency needs, such as need for esteem, success and a will to belong to a group.

Table 2

Transformational and transactional models within the real and digital economies

	Transformational model	Transactional model
Physical assets	Treatment of a material. Change of the form of a substance for its consumption for surviving of human beings. Purpose – to satisfy the basic needs (deficiency motivation)	Carrying out operations. Transport, logistics, services that are carried out physically. Purpose – to create new social needs (deficiency motivation)
Knowledge and data	Treatment of data and interpretation. Change of the culture, symbols and signs. Purpose – to reflect or discover «meta-motivations» – cognitive and aesthetic needs and need for self-fulfillment actualization	Carrying out communication. Purpose – to satisfy the social deficiency needs (esteem and belongingness) and meta-motivations by meeting others

Source: prepared by the author

The transactional economy in cyber-space is oriented to create and to satisfy the social needs:

In the post-modern society, the search for humanity and harmony reflects a profit-driven logics and a privileged niche of market, where the cognitive and aesthetic needs are satisfied with goods and services, material and non-material, in the form of physical and intellectual assets and art objects. The self-actualization and transcendence needs, according the A. H. Maslow' motivations hierarchy, can be satisfied in the complex activity of both transformations and transactions, because the eighth level of meta-motivation (transcendence) can be achieved by the personal communication of helping others' self-fulfillment and personal growth.

The commercialization of the meta-motivation permits to get revenue from the regulation, based on social embeddedness of economic action [8]. The companies can use legal and quasi-legal tools, including the manipulative advertising and public relations campaigns. The social responsibility plays, in this case, the role of the element of promotion. At the same time, the local inhabitants, environmental activists or social initiative groups are able to organise legal and illegal pressure on corporation to force them to the social responsibility' decisions and activities [9].

In this situation, the regulation serves as a social risks' management tool that helps to prevent potential dangers of the imposed social responsibility actions (such as blocking the railway against a train passing with nuclear waste). The regulative mechanisms help organisations to build an efficient structure of negotiations between an organisation (corporation, governmental establishment, international institution etc.) and different stakeholders, who express their interest to take part into the regulating a process, e. g., through the virtual government.

The preliminary analysis of the functional roles of regulation in the economic field gives the following scheme (table 3).

The internal regulation inside companies also is a supporting element for management activity, especially in determining the meanings and ideology of the human resources involvement. The «classical» managers rarely take into account the remark of F. Taylor: «The words «maximum prosperity» are used, in their broad sense, to mean not only large dividends for the company or owner, but the development of every branch of the business to its highest state of excellence, so that the prosperity may be permanent. In the same way maximum prosperity for each employee means not only higher wages than are usually received by men of his class, but, of more importance still, it also means the development of each man to his state of maximum efficiency, so that he may be able to do, generally speaking, the highest grade of work for which his natural abilities fit him, and it further means giving him, when possible, this class of work to do» [10].

Within the digital economy, customers, employees and partners of a corporate business structure are oriented to the sustainable development and regulative mechanisms for the highest level of needs. The comparison presents the advantages of the both models, institutional economics gives more elements of the functions of market and of regulation. But the contribution of this reflection in this paper is to find the interweaving between collaborative and competitive strategies and between market and regulation approaches.

The dilemma «efficiency – humanity» reflects the deep contradictory mechanisms form the economic, social and technological points of view. The consumption society is opposite in its essential ideas to the context of the Hellenistic harmony of stratified society and personality' development, this opposition reflects the dichotomy between the linear system of reasoning within the protestant ethics of capitalism — and the behavioral models of the «leisure class» within the linear model of an individual' positioning in the social hierarchy.

In the digital economy' context, the efficiency is based on the transparency and an accelerated access to data and information, to innovative technologies and equipments, according the perfect competition and market principles. But, the real human behaviour distinguishes from the economic modelling and represents the fundamental motivations, the heuristic paths of making decision and the protection of the essential basic values. The security of the human beings and of the societies requires specific mechanisms of regulation with a monopoly — of a State governor (governance' body) or a moderator (in a network). This regulation needs a set of competencies to be built, the skills and abilities to communicate with different actors from multi-cultural environments.

Today, the efficiency is more complex and needs to take into consideration not only the market logics of the low costs, but also the conformity with cultural norms (from different cultures). At the same time, the efficiency can be based on the monopoly of a resource, including the intellectual property, but in some cases, it is based on the

Table 3

Restricting and supporting roles of regulation vs market within corporate governance' logics

Functions	Social and Law Regulation	Technical and spontaneous regulation
To limit	Organizing flows with rules and limits for the discretional decisions. Produces additional costs. Reduces the motivation to innovate, the seeking for efficiency	Shareholders interests are related to the maximum prosperity, including the social responsibility of companies. Destroys the long-term relations
To structure	Assures planning and sustainable development. Adjusts links with stakeholders, helps to adapt products to the customers' needs. Prevent conflicts with stakeholders. Big data' use for better distribution of resources flows and assets	Helps to find innovative schemes and seeks the business efficiency. Avoid creating or hunt away the weakening businesses or economic agents from the market. Satisfy the search for freedom of the entrepreneurial activity

Source: prepared by the author

free access, and the result is increasing when the resource is totally opened for everyone.

The humanity issues in this post-modern society require new approaches to the regulation on from the highest (macro) level and until the individual and group autonomous mechanisms of imposing rules of communication.

The smart cities and devices, block-chain and Ethereum systems to fix the rights and to exchange the assets, are the examples that represent the transfer of regulation from hardware (the texts) as tools and human beings as authors, towards the computing every-ware [11] and cloud and fog computing (mesh network). The machine learning and economic intelligence represent the opposite logic from the dry ware design [12] (artificial intelligence' creation and development) to the copying of wet-ware (living organisms) [13]. The business intelligence is based on the analysis of sense and weak signals, of the semantic and symbolic content [14]. The evolution of internet of things (IoT) towards the internet of Everything (IoE) represents the convergence of the physical and virtual world, the world of imagination, of knowledge, of data and of digital tools.

The convergence of the private business and corporate management with the governance and public administration can use the same tools, such as big data, for the harmonic development of a human personality.

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Регулятивные механизмы «Промышленности 4.0», развития искусственного интеллекта и умных сред

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Постмодернистское общество формирует сложный, нелинейный контекст для гармоничного сочетания между эффективностью деятельности и целью развития человека. Социологический и экономический анализ эффективности, построенный на базе компетенций и мотивации личности, ставит человека в центр внимания и целеполагания. Информационные и коммуникационные технологии (ИКТ) в рамках управления данными и регулирования информационных потоков принимают на себя задачу обеспечения эффективности. Целостный экономико-управленческий подход направлен на регулирование бизнес-моделей создания ценности, комбинируя оба целевых направления. Разнообразие в «конце» цепи создания ценности, на стадии кастомизации продукции в ответ на индивидуализацию спроса, требует разнообразия в «начале» бизнес-модели, на стадиях изобретения и инноваций, от управления внутри предприятия до различных заинтересованных сторон вне предприятия. Конвергенция технологий и бытия человеческих жизней в их разнообразии должна стать предметом регулирования для обеспечения устойчивого развития. Эволюционные регулятивные механизмы будут опираться как на развитие интеллектуальных компьютерных систем, так и социально-экономических моделей построения взаимоотношений с учетом разнообразия.

Ключевые слова: регулятивные механизмы, разнообразие, передача знаний, управление, инновационная инфраструктура, искусственный интеллект, постсовременность, информационное общество.