New transmission mechanism for the sustainable and humanistic development of human capital: Demand for the ‘rigidity turn’

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Abstract. The author considers the becoming complex reality as developing nonlinearly and demanding new transmission mechanisms for the formation of human capital and also factors that contribute to changes in these realities: self-reflection of both nature and society; social gaps and traumas as becoming a ‘norm’; backward and forward trends; the increasing number of bifurcation points; ambivalences; side effects of digital innovations; consequences of global pandemics, etc. — all of them facilitate changes in the mechanism for the development of human capital. In the 1960s, G. Becker and T. Schultz introduced the term ‘human capital’ to start the studies of factors that make mechanisms of its formation more complex. Since then, many theories have been introduced to explain challenges to human capital, because various transmission mechanisms of influencing human capital have been formed as culturally and politically determined. Today, there are two challenges affecting the nature of human capital: digitalization and the global covid-19 pandemic create new requirements for human capital and change the transmission mechanism of its formation. However, the dominant pragmatic and formal-rational approaches to human capital distort its humanistic and sustainable components. The author insists on the need to create a new transmission mechanism for the sustainable and humanistic human capital development, which would include social-cultural and value elements, humanized digital technologies, bioethics and social epidemiology — in order to help social actors to function more effectively under the global complexity and nonlinear development. The author outlines the theory of the ‘rigidity turn’ as a social discourse, which aims at studying long-lived phenomena of social order and developing intellectual and practical foundations of the sustainable and humanistic formation of the human capital.

Key words: global complexity; nonlinearity; human capital; transmission mechanism; digitalization; sustainable development; humanism; ‘rigidity turn’
All the matter, including inorganic, organic and social worlds, possesses self-reflexivity and develops with the *increasing dynamic complexity* under the effect of ‘the arrow of time’ introduced by the Nobel Prize winner I. Prigogine [26]. Today, this effect is increasingly evident in the nonlinear complex reality, which leads to the epochal changes in the man’s nature and in the transmission mechanisms for the formation of human capital.

As Beck argues, the younger generations “incarnate the digital *a priori* — yet not at the end but at the beginning of their socialization”. They “were already born as ‘digital beings’. What has been packed into the magic word ‘digital’ has become part of their ‘genetic output’… One can see the empowerment of the younger generation and the disempowerment of the older generation: it is a subtle and surreptitious process… the relationship between the teacher and the student is dissolved, even reversed” [4. P. 188, 189, 191]. Therefore, the ‘pure’ human capital and the ‘authentic’ transmission mechanism for its development cease to exit. Younger people begin their social life with ‘googling’, thus, constructing their second digital body and becoming social-digital hybrids. To explain these ‘complex hybrid formations’, Urry proposed such theoretical terms as the ‘complexity turn’ [33; 34], ‘mobility turn’ [35], and ‘resource turn’ [36]. All these approaches aim at examining the effects of ‘the arrow of time’ and the factors of the nonlinear development for the contemporary world consists of complex physical, social, economic, technological and bio hybrids which cannot be reduced to one of these elements as being ‘*social-material*’. Within them “change is non-liner; there is no proportionality between ‘causes’ and ‘effects’; the individual and statistical levels of analysis are not equivalent; the system effects do not result from adding together individual components” [37. P. 60].

Younger generations turn into hybrid social-material systems, i.e., the complex and nonlinear formation of human capital is determined by both human and nonhuman actants functioning on the basis of digital technologies and artificial intelligence. Challenges to human capital become more evident in their *dehumanization* consequences. People cannot stop the influence of ‘the arrow of time’ but can create a new transmission mechanism for the sustainable and humanistic development of human capital. There are factors that can both minimize these challenges and open perspectives for the *humanistic core* of human capital in order to allow a successful adaptation to the global complexity, nonlinearity, digital innovations, and new pandemics. Among the most significant of these factors, there are humanistic knowledge and practices, traditions, customs, habits, archetypes, and *social routines* (Giddens) [13]. These and other factors of social stability constitute the basis of the ‘*rigidity turn*’ as a social discourse which aims at studying long living phenomena of social order and at providing intellectual and practical foundations for the new transmission mechanism for the sustainable and humanistic formation of human capital. Humanistic components in human capital depend on the functionality of institutions, values and norms of the sustainable development, and on the knowledge that ‘preserve’ spiritual and humanistic features of the man.
‘The rigidity turn’ does not oppose ‘the complexity turn’ and other approaches to the study of ‘the arrow of time’ — on the contrary, it emphasizes challenges of the global complexity and nonlinear development, the significance of long living and humanistic components for the sustainable development in general and for human capital in particular. The synergy of all ‘turns’ provides better knowledge (achievements of science and theology, sociology and psychology, thermodynamics and biology, anthropology and social epidemiology, information theory and cybernetics, semiotics, etc.) and opportunities for the new transmission mechanism for the sustainable and humanistic formation of the human capital.

The more complex trends of social acceleration, the greater demand for the ‘rigidity turn’

Today, the social change acquires different and more complex trends. The terms ‘evolution’ and ‘revolution’, used for the linear interpretations of historical processes, were features of Newton’s picture of the world. They presupposed the ‘progressive’, ascending development from the ‘lowest’ to the ‘highest’, which allowed to justify the ‘objective laws’ of the social change for the interpretation of human nature and the future of society. The majority of these visions did not come true for the world began developing in a different — nonlinear — way. Einstein’s nonlinear picture of the world was confirmed, which makes the following factors the essence of change: self-reflection of nature and society; social and cultural traumas; backward and forward trends; the increasing number of bifurcation points; ambivalences (according to Merton, social forms can simultaneously perform functions, non-functions and dysfunctions [24]); technological innovations and their side effects; global mobilities and pandemics. All these factors contribute to radical changes in the nature of human capital.

The scientific knowledge, also affected by ‘the arrow of time’, produced theories explaining new various forms of nonlinear change. Thus, Sorokin’s theory of social and cultural dynamics considers social development in terms of fluctuations — a dispersion of the sensate culture, the emergence of a new sociocultural order, and the birth of the man as an ‘integral being’ [32]. The theory of the rhizome development was proposed by Deleuze and Guattari: “The world has lost its pivot; the subject can no longer even dichotomize, but accedes to a higher unity, of ambivalence or overdetermination, in an always supplementary dimension to that of its object. The world has become chaos… A system of this kind could be called a rhizome. A rhizome as subterranean stem is absolutely different from roots and radicles” [11. P. 6]. Beck suggested another way of nonlinear development — metamorphization: “metamorphosis is not social change, not transformation, not evolution, not revolution and not crisis. It is a mode of changing the nature of human existence. It signifies the age of side effects. It challenges our way of being in the world, thinking about the world, and imagining and doing politics” [4. P. 20]. All these theories argue that the nonlinear development transforms both the nature of society and of human capital.
When rather simple, linear trends of development dominated, social theorists tried to find the main cause of social changes: social-historical determinism — social phenomena are determined by social-historical contexts and explained with ‘historical’ and ‘social’ materialism, according to which the decisive role belongs to the level of the development of productive forces and the nature of production relations [23]; cultural determinism — culture becomes the basic element of all other systems [3]; economic determinism — the economic factor is decisive (the only one) in changes of social realities [27]; technical/technological determinism — technology plays the key role in social development [1; 7], etc. All determinisms consider only external factors. Thus, a relatively simple social system is presented, which, according to Durkheim, “is external to the individual” and can be treated “as a thing”: it functions under the external coercive influence; its structure is reduced to the constituent parts; the causality is based on stable correlations between social facts [12]. Today, such simple systems and linear correlations can be found only in relatively local and ‘closed’ communities. However, the world, having crossed a threshold of the dynamic complexity, functions on both external and internal causes that produce multiple social, technological, physical, biological, psychological and other consequences and make human capital move towards entropy.

The speed of social changes is an attribute of modern development. Hartmut proposed the theory of high-speed society: in an increasingly complex reality, the share of short living societies increases and the share of long living ones decreases, which affects values, norms, authority, ideas about work, love, good and evil, etc. [15]. Social acceleration, imposing the ‘old’ social selves on new digital ones, is not a trauma in the traditional sense (limited in time and space) — it is a norm, an attribute of the complex, nonlinear development as determined by the effect of ‘normal trauma’ [19]. Social acceleration is determined by complex causality, which manifests itself in a fundamentally new functional quality — the ability of self-determination and self-reflexivity, due to which global complexity and nonlinearity ‘normally traumatize’ the social order. Complex realities led to social disorganization in the traditional sense of order and chaos, which facilitates the transition from nationally organized societies to ‘global disorganization’ [22] and puts an end to the organized human capital formation.

However, a new type of organization based on the hybrid of innovative and ‘old’ principles develops. Lash and Urry note that complex realities not only imply chaos but are organized in a different way due to new signs and communication regulators [21], and to global networks that master ‘mass self-communications’ and create a “new communication realm, and, ultimately a new medium, whose backbone is made of computer networks, whose language is digital, and whose senders are globally distributed and globally interactive” [9. P. XXX]. Therefore, special attention is given to the sustainable development as the core of the contemporary social organization [28] and to the search of ideas and principles of the new social order based on global complexity and social acceleration. According to Giddens, routinization determines the establishment and reproduction of social
systems: “institutionalized routines” help us to understand the ambiguous world by providing *ontological security* — a “fundamental sense of safety” necessary “to maintain a sense of psychological well-being and avoid existential anxiety” [14. P. 37, 61]. Bourdieu proposed an *integral approach* to human capital by taking into account the increasing demands of social actors for both *improvisations* and *traditional* economic, cultural, social and symbolic capitals. For the actor living in the reflexive modernity, human capital should include *a number of capitals* functioning as ‘domination structures’ and allowing individuals through self-reflections, horizontal and vertical social mobility to realize their life strategies [8]. Habermas calls for a ‘normal communication’ based on *ethical discourse* and communicative actions that create the potential possibility for rationality as playing a significant role in people’s life [15]. Beck insists on ‘the planetary ethic of responsibility’ and ‘the planetary sense of pain’ [5. P. 15, 69]. The restoration of the role of routine, substantive rationality and ethical discourse contributes to the development of the generally accepted knowledge and practices of humanism, which prove the significance of conservative, long living phenomena in the becoming global social order.

Under global complexity and nonlinear development, there is a demand for the ‘rigidity turn’ in order to create a new transmission mechanism for the sustainable and humanistic formation of human capital. In addition to the above-mentioned, the ‘rigidity turn’ has three other components. First, *traditions, customs, rituals, and rites* which historically contributed to the social integration of the normative order, reproduce narratives and basic senses of selves, make people socially responsible and loyal to national ideals. Second, *archetypes and myths* which manifest collectively-inherited ideas, patterns of thought and behavior, and serve as a source of universal symbolism [17]. For Russians, the most significant archetypes are the hero, the sage, the saint, and the penitent. Myth presents the essence of social realities as based on fantasies about the creative role of the man. Barthes argues that the major function of myth is to form a belief with the power of impressions [2], i.e., myth becomes a defense mechanism based on the presumption of truth of certain social realities. Myths construct collective perceptions and traditional social practices, which contribute to the social control and order. Third, *theological knowledge, religious believes and ethics*. Coleman argues that the formation of human capital needs religious ties for adaptive chances [10. P. 95–120]. Theology stands for moral and spiritual values which help to develop human spirit in the human capital formation. An example of the dialogue between the scholar and the theologian is provided by Bauman and ex-priest, an academic theologian and cultural historian Obirek — they took the path “from the blind arrogance of the possessor of a single truth to the restraint of a witness to multiple human truths”: they recognize differences between scientific and religious approaches to the interpretation of realities, but oppose ‘uncritical quasi-religious believers’, who claim a monopoly in understanding good and evil, virtue and vice, truth and falsehood [3. P. 2–3]. Thus, the challenges to human capital require broad integral approaches taking into account achievements of both scientists and theologians.
Challenges to human capital through the prism of the ‘rigidity turn’

Schultz, who together with Becker introduced the term ‘human capital’ [6; 29], argues that under the relative stability, differences in the quality of human capital do not have a significant impact on the income. However, in times of disasters, the qualities of human capital (especially education) allow actors to better express their individuality and creative thinking, which becomes a decisive factor in social adaptation to uncertainties [31]. Therefore, Schultz calls to ‘systematic investing in people’ [30], which presupposes the sustainable formation of human capital and is even more relevant under digitalization and global pandemics — they question what should be invested and with what transmission mechanisms.

Digitalization has become an ambivalent factor for global complexity and in turning symbolic humans into digital ones. According to Urry, “the digital self would transform the nature of each person” [36. P. 46]. The digital self emerged not only under new social facts but also due to the radical techno-digital innovations which changed seemingly ‘universal’ qualities of human capital. The digital becomes a factor of huge changes in man and human capital, which “are characterized by a lack of proportionality, or ‘non-linearity’, between apparent ‘causes’ and ‘effects’. There can be changes that do bring about big, non-linear system shifts, as well as converse” [36. P. 41–42]. ‘Butterfly changes’ in innovating technologies and artificial intelligence produce great challenges to human capital. Vanderburgh, the founding director of the Centre for Technology and Social Development at the University of Toronto, argues that digital technologies, focused on the pragmatic efficiency, diminish the significance of symbolized culture without which people are separated from their life experience. Thus, the main component of human capital is its symbolic essence as formed in the life worlds during socialization by learning traditions and customs, myths and narratives which reproduce archetypes, national characters, and human spirit. However, “we are becoming more like computers... we are being re-engineered in the image of technique” [38. P. 378].

As a reaction to these challenges, various types of new transmission mechanisms for the formation of human capital are developed as politically and culturally determined. The content of human capital is not universal: it varies by country and depends on traditions, archetypes, myths and beliefs, but is also influenced by the manifest and latent consequences of digitalization — all these factors require changes in the quality of human capital and the transmission mechanism of its formation. Thus, in the U.S. and Western Europe, pragmatic-digital indicators are considered desirable skills: teamwork competences, leadership qualities, predispositions to innovations and online communications. By contrast, in Asian countries, collectivist skills are preferable: discipline, learnability, academic performance, loyalty to authority and collectives. Kiril, Patriarch of Moscow and All Russia, believes that digitalization is an expression of evil for it transforms social consciousness, human soul and body: “Digital technology is capable of creating tools that ensure total control. Nothing like this could have
happened in the past. Technical civilization has reached a level of the total control over the person… The book of Apocalypse says that the coming of the Antichrist will be accompanied by total control over man. It does not use these words, but it is clear from the content that it refers to the total control over human behavior. It says that the seal of the Antichrist will be put on the forehead of man, and without this seal it will be impossible to buy or sell, or participate in social relations — men will be doomed to destruction” [18]. The integral scientific-theological approaches should be used in the study of the consequences of the ‘death of the social’ and side-effects of digitalization as causing social, spiritual and mental traumas.

Digitalization that radically changes the nature of human capital cannot and should not be stopped — its pragmatic vector needs to be changed so that the humanistic digitalization would provide a better protection for the man by promoting new approaches to education and environment, work and leisure, would contribute to the achievements in economy, management, and quality of life, and would preserve the human spirit, traditional values, and symbolized life-milieu in the form of social-digital hybrids. *Homo Digitalis* as a new social type would develop both rational-digital and substantial-humanistic components in human capital [20]. The ‘rigidity turn’ would provide people with the previously unthinkable capabilities for developing human capital as adaptable to the global complexity and nonlinearity.

Among the latest challenges to human capital, there are *pandemics*. Epidemics have always threatened human capital — physical health and mental lives. The diseases were cured not only by doctors — clergymen played significant roles in the use of traditional remedies, collectivist help, humanistic attitude and discipline restrictions. In the past, consequences of epidemics were limited in space, today we face global epidemics bringing complex vulnerabilities in the form of ‘*normal accidents*’: “In 2001, the virus spread around much of England before anyone knew that it had even arrived. That we might say is fast mobility, a normal accident” [35. P. 59]. According to Perrow, ‘normal accidents’ are catastrophes caused not by gross human faults but by people’s natural interaction with complex social, technical, environmental, and biological systems, which occasionally have ‘normal’ failures even under the best management [25]. Today, the diminishing humanism, religious values and bioethics provoke ‘normal accidents’: for instance, in laboratories, risky experiments are conducted with viruses and bacteria, which change both them and us and cause new epidemics. These epidemics are not only of biological essence, but also of the cultural one (covid-19, AIDS, anorexia, gambling addiction). Moreover, new pandemics produced a dehumanized asymmetry in valuing the lives of ‘others’ — risks of the covid-19 increased the inequalities of nations in their access to treatment, medicines, and vaccines.

To counteract this evil pragmatic, innovative means and high-tech medicine are not enough — we need a broader cooperation of nations to move towards the humanistic medicine and bioethics in order to overcome the commercial egoism. Collectivist peculiarities of national characters are manifested in medical assistance
in the countries affected by the covid-19 — Russia, China and Cuba. Their population and political elites pursue humanistic collectivist values and corresponding ideas of well-being and justice. On the contrary, in the United States and Great Britain, the priority is given to the rights and freedoms of individuals. Anyway, the possibilities of cooperation, humanistic medical surveillance, religious believes, bioethics and social epidemiology are commonly used for minimizing the risks of infections.

Today, the boundaries between the social, digital and biological are blurred. If people and groups cannot cope with the global complexity and the increasing speed of changes, and do not examine the consequences of digitalization and pandemics, new challenges for human capital may arise. Thus, if we do not ‘humanize’ the existing transmission mechanisms, the risks to human capital in the form of ‘normal accidents’, social tensions, fears and anxieties will increase for the dominant pragmatic transmission mechanism distorts the humanistic component of human capital. There is a chance to develop new means for preserving humanism in human capital in terms of the effective epidemic control and medical surveillance, and reorientation of digital technologies from the pragmatic consumerism to healthy life-styles.

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In the contemporary society, side-effects of digitalization and consequences of global pandemics are evident. People turn into social-digital beings with a natural affinity to all kinds of ‘smart’ machines and artificial intelligence. Many people implant chips in their body to artificially combine the real body and the digital one. On the one hand, this allows scanning data from the human body — such innovations are used for social and medical purposes to preserve and increase human capital: prosthetic limbs on the basis of digital technologies, pacemakers, artificial eyes, online medical consultations, and so on. Smartphones, cell phones and personal computers serve as second digital bodies, and people perceive them as a part of their identity. The digital provides a better protection for human capital by promoting new approaches to education and environment, work and leisure; it contributes to the development of economy, management structures, and quality of life. However, on the other hand, there are risks of total control over man’s behavior and human capital formation.

The new transmission mechanism for the sustainable and humanistic formation of human capital should be managed on the principles of the ‘rigidity turn’ — support both rational and humanistic ways of interactions in order to preserve symbolized culture, social communications and the human spirit. If previously the meanings of social happiness and justice depended on social-cultural realities, values and norms, today the visions of life success are largely determined by the individual adaptation to digitalization and epidemic environment. Thus, younger generations should become ‘virtuosos’ of digitalization and networking and also be predisposed to continuous narratives and rigid values of the humanistic kind. The
demands for the qualitative characteristics of human capital imply not so much solving pragmatic problems (they are unavoidable) as increasing humanistic components (symbolized life-milieu, cultural traditions, national archetypes, human spirit, etc.). To achieve this goal, cooperation of scientific and theological knowledge is needed to create new forms of humanism, including the humanistic orientation of scientific research as an ethical imperative, and to prevent the reorganization of network communications into computer-like (it leads to the formation of a secular ‘soul’ of the digital type). The principles of the ‘rigidity turn’ can facilitate the rebirth of the authentic humane living with the rejection of cults of pragmatic effectiveness, formal rationalism, and digitalization. To ensure the sustainable development, political leaders should move from the confrontation policy to cooperation actions, which can start nonlinearly given the fundamentally new factors affecting human capital.

References

Новый трансмиссионный механизм для устойчивого и гуманистического формирования человеческого капитала: востребованность «поворота ригидности»* 

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Аннотация. В статье анализируется усложняющаяся реальность, характеризующаяся доминированием нелинейного развития, что требует новых трансмиссионных механизмов для формирования человеческого капитала. Автор рассматривает факторы, способствующие изменению современных реалий: саморефлексия природы и социума; социальные разрывы и

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травмы, становящиеся «нормой»; тенденции обратно-поступательного развития; увеличение числа точек бифуркации; амбивалентность; побочные эффекты цифровых инноваций; по- следствия глобальных пандемий и др. — все они способствуют изменениям в механизме формирования человеческого капитала. В 1960-е годы Г. Беккер и Т. Шульц ввели в научный оборот термин «человеческий капитал», положив начало исследованиям факторов, которые потенциально усложняют механизмы его формирования. С тех пор было разработано множество теорий человеческого капитала, сформировались разные подходы к его формированию — культурно и политически обусловленные. В настоящее время появились два новых вызова, влияющих на характер человеческого капитала: цифровизация и глобальная пандемия covid-19 предъявляют новые требования к человеческому капиталу, внося коррективы в трансмиссионный механизм его формирования. Однако сегодня доминируют прагматические и формально-рациональные подходы к человеческому капиталу, умаляющие его гуманистическую сущность. Автор настаивает на необходимости иного трансмиссионного механизма для устойчивого и гуманистического формирования человеческого капитала, включающего в себя социокультурные элементы, ценностные ресурсы, гуманизированные цифровые технологии, биоэтику и социальную эпидемиологию, что позволит социальным акторам более эффективно функционировать в реалиях глобальной сложности и нелинейного развития. Автор намечает контуры концепции «поворота ригидности» как социального дискурса, направленной на изучение долгоживущих феноменов социального порядка, разработку интеллектуальных и практических основ устойчивого и гуманистического формирования человеческого капитала.

**Ключевые слова:** глобальная сложность; нелинейность; человеческий капитал; трансмиссионный механизм; цифровизация; устойчивое развитие; гуманизм; «поворот ригидности»

**Информация о финансировании**