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Наука об обществе и понятие сложности. К 30-летию *Die Wissenschaft der Gesellschaft* Никласа Лумана

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Обращаясь к тексту книги Никласа Лумана «Наука общества», 30-летие издания которой отмечается в этом году, авторы применяют методологию системно-коммуникативной парадигмы к исследованию взаимоотношений научного познания, науки и внешнего мира как сложной многомерной системы. В фокусе внимания авторов предложенная Никласом Луманом уникальная методологическая рамка научного знания, предполагающая в качестве ключевого механизма научного познания использования бинарной оппозиции «истина – ложь». В результате возникает специфическая научная коммуникация, которая в качестве внешнего контекста научного познания исследует в том числе и социальный мир, «человеческую социальность». В заключение в качестве примера функционирования подобной научной коммуникативной системы авторы указывает на российскую научную политику, которую политическое руководство страны пытается использовать не в ее прямой функции научного исследования, но как генератор достижений. При этом междисциплинарные исследования не развиваются естественным образом, в ответ на запрос со стороны индустрии. Отсутствие междисциплинарных проектов мешает внутренней коммуникации и интеграции ученого сообщества. В результате российская наука не развила в себе механизмов защиты от политического давления со стороны регулирующих государственных институтов.

***Ключевые слова*:** сложность, системно-коммуникативная теория, российская наука, Никлас Луман, «Наука общества»

THE SCIENCE OF SOCIETY AND THE CONCEPT OF COMPLEXITY. ON THE 30th ANNIVERSARY OF THE PUBLICATION OF NIKLAS LUHMANN'S BOOK *DIE WISSENSCHAFT DER GESELLSCHAFT*

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This article is dedicated to the 30th anniversary of the publication of Niklas Luhmann's book *The Science of Society*. The system-communicative approach to the analysis of science is reconstructed with a focus on the relation of science to its highly complex external world. The problem of complexity is posed as a key one and is considered in the context of the communicative "reduction of the complexity" of the external world, which science actualizes through its unique binary opposition (*truth/falsehood* distinction). The complexity of the world that science is facing disintegrates into two large areas. On the one hand, science processes its own external world, i.e., nature, society, the human psyche, as its object and thus fulfills a unique function, the pursuance of research. Scientific communication in this case can be integrated in the form of *trans*disciplinary studies. On the other hand, science has to respond to the complexity of the internal (i.e., social) external world of the communicative system of science, namely, to interfaced communicative systems of the embracing system of world society (politics, economy, religion, education, law, etc.). In the latter case, science does not fulfill a function but delivers achievements on request to the above-mentioned communicative systems in exchange for resources for *inter*disciplinary studies, which are occasional and cannot serve for integrating scientific communication on a systematic basis. We will propose some corrections to this theory and apply it to the situation in Russian science.

***Keywords*:** Complexity, System and Communication theory, Russian science, Luhmann, The Science of Society

Introduction: Science and Its Complex External World

Niklas Luhmann's book *The Science of Society* [Luhmann, 1990] was published 30 years ago. This work took its place among several fundamental monographs, each of which was dedicated to a communicative system of world society: economy, politics, law, the mass media, religion, and art. The book was intended to determine the position of science among commensurate communicative systems. This position was not something naturally understood. On the one hand, from the standpoint of the system-communicative analysis of society, science is "in the same research plane" where research on the economy of society, the politics of society, the law of society was considered. However, science claimed an

"advantageous position". Note that, as opposed to politics, which claims dominance "inside society", science dominates "over society". Recall that, specializing on observation, it claimed a wider field of view. The key distinction of scientific communication is that between *true* and *false* [Luhmann, 1990, pp. 167–271], which is then specified and concretized by special programs (theories, methods), limiting this research process. It is this combination of binary coding and programs that ensures the unique function of scientific communication, pursuance of *research*.

Of course, politics can control science by determining topics significant at the state level as a kind of state assignment for science. The economy also can direct research by financing the development of economically significant technologies. However, only science can determine the trueness or falsity of its statements about nature, man, and society, and no one can replace it in this function of an observer external to the rest of society. Truths come after truths independently of orders, money, or laws.

Luhmann understood science as an entity contradictorily positioned relative to politics. These systems use polar means to reduce the complexity of the external world. While an Ego as a politician subordinates its *actions* to *actions* of a superior Other, an Ego as a scientist coordinates its *experiences* with *experiences* of the Other. No doubt, science consists of actions and communications but styles them as mutually authenticated *experiences* of the external world, as perceptions, observations, experiments.

Science in this sense, together with value communication, is in the upper left square of the scheme of variables, or Luhmann's constellations: the Ego undergoes experiences in response to experiences of the Other. Politics is in the lower right square: *the Ego acts, subordinating and reacting with its actions to actions of the Other*.

In this sense, politics is *self-referential*. It relies on the will to action and, as a projective or arbitrary communication, it can (at least partially) ignore what is going on in the outside world. Science, on the contrary, is predominantly external-referential since it views the external world itself as objective and limiting the arbitrariness of a scholarly observer.

Therefore, the preponderant position of science in society follows from its outstanding capability of "objective" and, hence, *external* – relative to science and the rest of the world – observation. "However, where such a position *outside* society could be found, and, if such a position does exist, who could observe this society", Luhmann wonders [Luhmann, 1990, 355). According to Luhmann, this difficulty required reconstructing science as a *complex* communicative system in its inextricable connection with – and, at the same time, at an insuperable distance fro – equally complex society.

	Ego experiences	Ego acts
The Other experiences	Science (truth, values) Experiences of the *Ego* (for example, the data of experiments that prove the trueness of theoretical theses) must be confirmed by experiences of any *Other*	Intime system (love) Using its *actions*, *Ego* tries to cause *experiences* of the *Other*
The Other acts	Economic system (money) *Actions* of the *Other* (for example, claims to material benefits) do not cause an act response but are *experiences* by the *Ego* because the Other has ownership rights or money; Art system (work of art) The artists acts, the spectator experiences	Political system (power) *Actions* of the *Other* entail *actions* of the *Ego* if they are regulated by *Power*. Personal *experiences* must be withdrawn from the sphere of political and military communications

Functions and Achievements

The social function of the communicative system of science is the study of the external world, the reduction of its complexity. This implies that, owing to science, the *entire* society acquires noncommunicative, nonsocial external world as well. In a sense, the science of entire society performs for the latter the same function as perception performs for the psychic system (consciousness). This does not mean that science observes (or, which is pretty much the same, discusses) the world as it is in a reality as such. This only means that science draws a certain distinction in its communications. The second side of this boundary (as what is not a scientific communication) is postulated as the complex external world of science and society. Science has no priority access to reality; it only has an *access of its own* to complex reality. However, only science can ensure this access because only science can conduct research, i.e., has unique means of reducing the complexity of the external world – by the distinction between truth and falsehood and *programs* to implement this distinction (theories and methods).

Possessing such unique means and a corresponding function, science remains a *social* system. This means that it not only studies the external world of the whole society, performing its unique function. As a social system, it is interfaced with *other social systems*, to which, in response to certain requests (primarily, from industry, politics, education), it offers its achievements in exchange for certain resources. Science must cope with pressure from other communicative systems to actualize, in response to their requests, its own function – to conduct research on the basis of its own priorities, interests, and motivations. Science must distance itself from other systems; elaborate filtering, channeling, buffering and other tactics; and systematically reject attempts of other systems to affect, including destructively, the autopoiesis (autonomous self-reproduction) of scientific communication. Such a reduction of social (i.e. internal) complexity as a condition allowing science to process its external complexity is a major social premises of contemporary science.

Social Premises of Science

A major distinction of the system-communicative analysis of science is that between the *function* of science and its *achievements* (*Leistungen*) [Stichweh, 2013, p. 20]. The *function*, characterizing *scientific research* as what no other communicative system undertakes, makes it possible to *isolate* scientific communication, allowing its genesis and normal reproduction. The *achievements* characterize the product of science, which it supplies to other individual systems, and, on the contrary, *connects* (*through exchange relations*) it with its external social world. Such relations often drive the system into an "excited state" and require an "immune response" – the rejection of foreign matter, namely, communicative requests not regulated by the binary code of science, *truth/falsehood*. For example, politics may require achievements from science (publications in international citation databases, where not only research and resultant true knowledge (i.e., the function of science proper) but also their imitation can be presented by science as an object of exchange with the system of politics). Industry also may require from science new technologies (genomic, nuclear, etc.) without proper investigation into the possibilities and risks of their application. And education is interested in the content the main advantage of which is not *trueness* but the possibility to transform it into students' educational competences (see below).

However, for science to be engaged in research without interrupting for "mutually beneficial exchange" and respective "protective reactions", society itself should develop *immunity to science*.

Luhmann formulates a set of critical social conditions [Luhmann, 1990, 616–702) that make possible the autopoiesis of scientific commu-

nication and the reduction (even better, neglect) of the external social (and in this sense – *internal*) world complexity.

First of all, we mean that society no longer rejects views inconsistent with everyday life and previously established theoretical assumptions. This implies a tolerant attitude to criticism and "positive interest in the false". At the same time, the search for false or erroneous statements of other scientists should be considered as a merit, a useful activity, and even as a kind of civic activism.

This reflective interest in the false, criticism, and general orientation to "cognitive expectations", i.e., readiness for disappointment in normative order (both relative to established knowledge and to social order as a whole), became the most important premises of modern scientific discourse. They as if made "independent variables", on the one hand, the "rent of past merits" in the social dimension of scientific communication (i.e., authority, reputation, position in the hierarchy) and, on the other, the evaluation of actual success or failure in research (the *thematic or subject* dimension of scientific communication). Past merits are nullified (in the *temporal dimension* of communication) and are considered only at the stage of *application* for research funding but not at the stage of the assessment of scientific project implementation. It is this premise that parts *politics* and science. In political communication, the "rent of merits" and the *social dimension* as a whole, i.e., a higher position in the structure of power, turns out to be a key factor in the issue of the Ego's acceptance of the request for contact from the Other. In science, on the contrary, the subject and especially temporal dimension (the temporary priority in discoveries and inventions) dominate and determine positions in the social dimension. A proposal of communication (a scientific project, an application for a grant) is evaluated from the standpoint of novelty and topicality.

Freedom from Political Impacts on Science

The social premise for the isolation of science is its communicative autonomy. This autonomy manifests itself in its own (not imposed from outside) determination of balance between its function (research) and its achievement (product of exchange with other systems). How can we interpret these theses of the system-communicative approach proceeding from present-day realities?

The aforementioned social premise has not been actualized to the full, first of all, because of the influence that the political system seeks to exert on science. What the political system expects from science is "concrete scientific results". Then politics uses these results to report to the electorate, considering them an achievement of its own. Politics exerts pressure on science, observes it, demands "achievements" from it

(fulfillment of government assignments) as a response to financing, and wants to "understand" the content of basic science. Politics claims to reduce the complexity of science. To this end, it creates a pool of experts in scientometrics as another subsystem with the function of the "structural interface" of science and politics. Note that politics observes science using its own intrasystem optics, the binary code of power, and, hence, all its observations one way or another serve the internal, political autopoiesis, the maximization of its own power but not the fulfillment of the social function of science.

Note that politics, in turn, encounters the *complexity* of the resisting scientific communication and tries to reduce it. It proceeds from the scientific results obtained *at the level of achievements*. The results obtained at the level of social function (= autonomous research self-referentially assessed by science) are also interpreted today as achievements, as national indicators in the international market of publications. Recall that politics is definitively unable to assess independently the fundamental and breakthrough nature of scientific research as such. It has enough resources to evaluate "exchange transactions by achievements": whether industry buys achievements of scientists (primarily in the form of technologies); whether publishers, journals, and citation and publication databases buy scientific articles in certain disciplines or from certain countries; and to what extent the education system transforms scientific content into educational competences.

At the level of achievements, the external impact of politics on science manifests itself primarily in the imposition of research topics (related to technologies, security, ecology, etc.). This external imposition (and respective promises of rewards in the form of grants and increased funding) leads to the *inflation of truth* [Luhmann, 1990, 623]. This inflation implies inflated expectations for future research success. In response to political interventions, a "fever" occurs. Hasty and unfounded projects and applications are formulated as evidence of struggle (let us use a metaphor here) of "scientific immunity" against such alien interventions from the external world of science.

This violates the "intrasystem connectivity" of communication, i.e., a nonrandom sequence of communications oriented at the internal rate of system formation and intrasystem temporality. As applied to science, this means that research results are tailored to the desired ones. The clarity of concepts, definiteness in the statement of problems, and consensus on whether they have been solved (especially in accounting documents) are not guaranteed. The *inflation of truth* results in the fact that unguaranteed or even knowingly impracticable scientific results or achievements are announced, just like an inflation economy, oriented toward future rises in prices, promises high interest payments on investments.

The second social premise of science characterizing its function is tolerance on the part of its external world to its language, incomprehensible

for the external public. The terminology, as well as the essence and significance of scientific breakthroughs (especially in theoretical physics, mathematics, molecular biology, etc.) become incomprehensible even for the well-educated part of society, which cannot (because of the *linearity* and time deficit of scientific communication) make interruptions to explain each term to those who would declare their ignorance. Scientific communication, on the contrary, is focused on temporal parameters of success. The provision of a feedback from the external supercomplex social world (with which it would have been bound to enter branch explanatory communication and divert time resources) is not a critical condition for the acceptance of a request for communicative contact from a researcher.

Is there a way to resolve this problem of the communicative self-isolation of science? It could be solved by institutionalizing popularist branches of scientific ductus, including the creation of scientific societies, whose tasks, among others, are multidimensional communication of popularization and the provision of a feedback from the external world. This line of communication, isolated from major science takes on a special function, the processing of the complexity of the *internal* (= social) external world of science. It is this institution that responds to numerous challenges and requests from communicative systems "structurally coupled" with science (education, industry, the mass media, politics) and, in a popular language adapted to them, explains the essence of scientific breakthroughs and achievements.

It is noteworthy that this function of *para- or unorthodox science* as a form of the *structural coupling* of science with other systems requires significant correction today. This function, which ensures the *structural interface* of scientific communication with the system of society (the social external world of science), is carried out today by *network communities*. These communities include volunteers, scientists, and nonexperts, ready to spend their time for popularization, the verification of the trueness of "scientific achievements" and authenticity of scientific novelty, and the revelation of misconduct and predatory practices inside supercomplex science. It is them (on platforms provided by industry within the structural coupling of science and economy) that reduce the *internal complexity of science*, represented today by millions of scientific texts. Science in the person of scientists overemployed in academic and dissertation councils and already unable to control this internal complexity interactively, i.e., through collegial discussion within their local research institutes (departments, faculties), has to outsource this function from networks specializing in science.

Network science makes it possible to *branch* usually linear scientific communication without damage to immersion, which characterizes competitive research teams. For example, *Publons* (a service proposed by industry) provides mass and branched discussions of scientific achieve-

ments of concrete scientists, journals, faculties, and disciplines in the form of informative reviews, assessments of scientific achievements of both individual scientists and institutes (universities, faculties, laboratories, journals), and so on, which can be exhibited by practically everyone (experts and amateurs); this compensates for the negative effects of the conceptual and language self-isolation of contemporary science as its major premise.

Is Mature Science a Science Without Spectators?

Still another aspect of the system-communicative matureness of scientific communication relates to the above conceptual and language self-isolation. We mean the *science/public* asymmetry, i.e., that science has no "clients" – the public that would directly consume its product without participating in scientific communication. For example, we know about *"Asymmetrie von Produktion und Konsum in der Wirtschaft oder die Asymmetrie von Regierenden und Regierten im politischen System. Das Erziehungssystem knüpft an die Unterscheidung Erzieher/Zögling (Lehrer/Schüler) an, im Medizinsystem gibt es Ärzte und Patienten… Das Publikum der Wissenschaftler sind die Wissenschaftler"* [Luhmann, 1990, p. 625].

Why does science reduce such an important aspect of its external social complexity as individual requests, questions, and expectations? Why do individuals formulate their expectations and demands in relation to politics (more democracy, more representation, more redistribution of national wealth, more rights) and the economy (fair prices, more guarantees on employment and social packages) but not to science?

System-communicative theory explains this anomaly. Recall that *true knowledge* generated by science is a consequence of coordinated observations (scientists' coordinated mental activities, perception, imagination, etc.). This means that knowledge paradoxically appears (or is styled) as independent of *actions* of scientists (at least with regard to the freedom of will or even arbitrariness that is usually associated with *action* but not *experience*). It is in this sense that a scientific achievement may be interpreted as not having *direct* authors. A scientist in his or her observations, experiments, and resultant theories as if loses the independence (arbitrariness) of judgments. Indeed, in his or her perceptions, as it seems to him or her, he or she only *reproduces* "the real". In this sense, he or she does not create anything *fictitious*, as is typical of authors of fiction works and developers of political decisions or economic projects, consumed and assessed by clients, the nonsystems public, for which these "works" are intended.

Scientists attribute truth not to themselves but as if to *communication itself*. We mean that they accept "requests for contact" proposed for con-

sideration and claiming trueness (today, these are primarily manuscripts for journals) not arbitrarily and not by their will and decision. Hence, there have been no *name* for the discoverer of truth for a long time, while the word *scientist* was coined by W. Whewell only in the 19th century. Science for a long time was not viewed as a profession, where actors produce a "product for the other", for the public asymmetrical to science.

It was largely this premise that forced scientific discourse to accept any doubt or deviating opinion contradicting the statements even of high-ranking scientists. Recall that any opinion, including that of a novice scientist, can be substantiated by a reference to "the experiencing of reality" and, hence, does not depend on merit or "scientific reputation". The alibi of any "delinquent" in science is that he as a true scientist as if "unwillingly" brings confusion into established communicative flows and finds errors in established concepts.

Therefore, the boundaries of the scientific community are determined not so much organizationally (i.e., by the rules of membership in a scientific organization) (everyone, even without an academic or educational affiliation can submit an article to a scientific journal) as by the possibility to *understand* and the difficulties of direct participation in communication with the scientist. In this sense, the system is not closed for the public and is not opposed to the public. However, this does not make the boundary less rigid.

Summing up the above-mentioned communicative premises of science that distinguish science from the rest of society, it is possible to reduce them in part to a certain basic communicative property, namely, to renunciation of *authority* based on special semantics. We mean the *Old European semantics* of cognition, which binds into a *single* knot a *true statement*, de*ep structures of the world, appeal to power, and moral superiority*. In this sense, any true cognition fixed true being, the only possible nature; reconstructed "God's plan"; testified to chosenness; was a wonderful and moral act; and, hence, held a high motivational meaning for the scientist since it endowed the cognizer with public *authority*: *„Der Wissende ist unter diesen Voraussetzungen der Wächter des Zugangs zur Wirklichkeit"* [Luhmann, 1990, p. 627].

This Old European semantics coupled the scientific community with its social external world. The disintegration of this semantic knot and, together with it, the basic motive for scientific activity, was fixed in 1917 by Max Weber in his manifesto „Die Wissenschaft als Beruf". According to Luhmann and Weber, the complexity of the world, cognizable by science, has lost its *value unity*. However, Luhmann adds the loss of the *semantic linkage of science with the rest of society* to this Weberian list of the l*ost illusions* in the ability of science to reconstruct the complexity of the external world. As we remember, the language of science is incomprehensible to others; in addition, science has no external audience that could appraise its achievements and so on. This also explains the impos-

sibility of a "value justification" of scientific statements, which Weber fixed just as fact of modern science and to which Luhmann proposed a system-communicative justification.

The breakdown of Old European semantics, fixed by Weber, implied important transformations in the *subject* dimension of scientific communication. First of all, one had to abandon the unity of the true and the existing, from *ontologischen Weltkonstruktion mit ihrem einfachen eins-zu-eins-Verhältnis von Sein und Denken* [Luhmann, 1990, p. 629] and, hence, from various "natural ontologies". The complexity of the external world could no longer be understood as a *synthetic unity of values* (nature, truth, good, beauty) and as the only presentative in any observation.

This change in the *subject* dimension of scientific communication was accompanied by changes in the *social* dimension. The diversity of equal ontologies (presentations of external complexity from different observation positions and using different observational tools) obviously correlates with the idea of the *equality* and independence of various observer communities. Note, however, that only the scientific observer community, having abandoned claims to *authority* and recognizing the right of other communities to their own "observations" and "ontologies", could still *inwardly* (i.e., inside research) insist on the trueness of its own world constructs and unique observational optics, the *truth/falsehood* binary code.

These social consequences of the isolation of science from its social external world (primarily from politics and religion) allowed it to understand (and thus also generate) a new polycontextual world.

According to this model of separating system-communicative autonomies (politics, religion, economy, art, etc.), science does not seize authority from religion and politics and does not use its own authority to "lobby" political decisions or impose scientific ontology on religion. *„Die Politik ist ein Entscheidungssystem, aber kein Wissenssystem "* [Stichweh, 2019, p. 1]. Still it does something useful for them, namely, provides *unloading*. In particular, politics receives data (today, big data) from science but makes political decisions independently and refuses from scientifically substantiated theories in its party programs.

Nevertheless, the *complexities* of the above-mentioned communicative systems are difficult for processing. Recall that any communicative system as an autonomous communication has only its own observational tools and cannot borrow them from others. Education uses its own *competence/incompetence* binary code and is unable to engage currently relevant distinctions of *true/false* knowledge. Hence, *„Nur noch in der Schule "gilt„ Euklids Geometrie "* [Luhmann, 1990, p. 630]. The teacher communicates with students referring to the authority of scientists. However, science refuses to support this authority not only from the standpoint of modern physics in its descriptions of the quantum uncertainty of the complexity of external nature but also from the point of view of social theory. In the form of a social theory, science postulates the same uncer-

tainty or polycontextuality regarding the internal (i.e., social) external complexity of science, other communicative systems of modern society.

Here system-communicative theory faces the same problem that was posed but not solved by Weber. How is it possible combine claims to universalism (the presentation of scientific rationality as rationality par excellence) and the reliability and substantiation of scientific statements (as an alibi of science before all particular communities, united by value and normative) with the obviously short life of current scientific truths and the cognitive nature of the expectations characterizing the scientific community.

Obviously, it is important for science to preserve both: on the one hand, the variability and contingency of its statements (cognitive expectations) and, on the other, the claims to their validity and reliability.

Conclusion

Today it is obvious that the corpus of the social disciplines and humanities continues to be an exception to the general rule of the above-described autonomization of the scientific community from other communities representing external social complexity for science. System-communicative theory did not reflect on their special function but considered them, rather, as unripe to the level of baseline sciences. This "immaturity", however, did not exempt them from the need to focus on the standards of more successful and more fundamental disciplines, as an example of scientific rigor and fundamentality [Stichweh, 2013, p. 28]. Today, on the whole, the opinion prevails that, despite the function of "interrupting the continuity" of the external world's complexity, carried out by each discipline, science itself, in its internal complexity, shows the same continuity.

Agreeing with this continuity of science, which follows from the hierarchical (hence, continual) structure of disciplines, one still needs to recognize the radical "interruptions of continuity". First of all, this concerns the issue of the *science/public* asymmetry declared in the system-communicative approach as a key social premise of modern science and its communicative gap with its external social dimension. It's hard to agree with this today. So, social and humanities-related knowledge still forms a kind of classical clientele. These are, primarily, politically engaged intellectuals, including some politicians who are interested in the achievements of social theory. These are also readers who are interested in philosophy, sociology, history and who buy relevant scientific literature.

On the one hand, they are clients of science, who receive products from it (both as knowledge and as material wealth). On the other hand,

they, to a certain extent, "understand" the "scientific language" of philosophy, sociology, history, psychology, etc. True, they, as not affiliated, are still excluded from the internal scientific discourse but, nevertheless, actively discuss and "promote" this or that problematic topic of science in social networks.

Introducing a distinction between *function* (autonomous scientific research) and *achievements* (scientific products for other systems of society), system-communicative theory in its classical form did not record a correlative distinction between *interdisciplinary* and *transdisciplinary* types of knowledge – two fundamentally different forms of science integration. Such integration was a counterweight to its apparent disciplinary differentiation.

The system-communicative theory of science, which was created 30 years ago, could not yet reflect on the phenomenon of social network science. Nevertheless, as a social premise of science, Luhmann singled out the most important condition – "functioning technology" – as the principle of reliability of the scientific knowledge used in it. In this sense, society itself, sending a request for technology, (paradoxically) certifies and controls the reliability of knowledge.

However, today, society does it differently. A scientific network has become such a technology, partly "removing" the above paradox of simultaneous reliability and contingency (temporality) of scientific statements. It makes reliability possible by maximizing contingency. Now a scientific article in its online presentation, at the sites of Publons, ResearchGate, Google Scholar, etc., becomes available for review to a great number of scientists and experts, outdoing the remaining interactive forms of communication (scientific and dissertation councils, etc.) and anonymizing science and the ability of scientists to "promote" their ideas in a form other than the text.

It should be emphasized that the Luman's ideas do very well describe the situation in Russia, where the political authority is trying to use science as a generator of its achievements. Whereas the authority pays too little attention towards the direct function of scientific research. At the same time, the interdisciplinary studies are not developing by itself in response to requests from the industry. The exception here are several areas, primarily, the researches of the nuclear energy, studies in the military science, and in the area, related to the extractive industry. The lack of interdisciplinary projects does not contribute to the integration of the academic community, where communication is carried out within the framework of disciplinary-fragmented scientific fields. This is also facilitated by the sectoral and institutional differentiation of science, inherited from the Soviet Union. As a result, Russian science has not developed mechanisms to protect itself from political pressure from the regulatory Ministry and other state institutions.

But the political system itself use the ersatz of opposition pseudo-scientific organizations to protect science and to oppose the current govern-

ment, masquerading such an opposition pseudo-scientific organization as its own scientific institutions. There is a special community "Discerned", specialized in exposing plagiarism in the officials' dissertations. Although such institutions are not the scientific subsystems by themselves and do not solve the problem of immaturity of Russian science as an autonomous communication system.

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