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SOCIAL STATUS AND PROFESSIONAL SUBCULTURE OF ENGINEERING AND TECHNICAL SPECIALISTS IN THE MODERN RUSSIAN SOCIETY: PROBLEMS AND PROSPECTS

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Abstract

The article discusses the social status and main elements of the professional subculture of Russian engineering and technical specialists in the context of domestic and foreign concepts and on the basis of empirical data reflecting the assessment of the attractiveness of the engineering profession in modern Russian society.

Particular attention is paid to the creative aspect of the activities of engineering and technical specialists, their role in the innovative development of society.

Keywords: engineering and technical specialists, professional subculture, prestige, innovative activity.

I. INTRODUCTION

Currently, Russia faces global challenges related to the need to modernize the economy through the development of scientific and technical research and new digital technologies. The main driving force behind the modernization are highly educated personnel - technical specialists, scientists and engineers.

The main function of engineering and technical specialists is the intellectual provision of modernization policies through the construction of factories, the organization of new industries, the development of competitive technologies, the search for new opportunities. In this regard, the relevance of the issue of the social status of an engineer in Russia, the assessment of his work and creativity is increasing.

II. METHODOLOGY

When considering the social status of engineering and technical specialists in modern Russia, data from sociological surveys are used, reflecting the assessment of their work and the role of scientific and technical creativity in the innovative development of the economy.

The data obtained during large-scale sociological research conducted in the Soviet and post-Soviet periods and creating a monumental portrait of this professional group are used.

These data allow a comparative analysis of how the social status of engineering and technical specialists in our country changed during the Soviet and post-Soviet periods and, accordingly, how the identity and subculture of this professional group were transformed.

The opinions of foreign researchers on the impact of intellectualized labor of an engineer as a representative of science, most integrated into industrial production, on the growth of labor productivity are given.

It should be noted that in Russia the level of innovation activity in industry does not exceed 10% compared with 51% on average in the EU countries. Depreciation of fixed assets in some industries reached 70%, and the average age is 15 years. Russia's share in the market for high-tech products is only 0.3%. For comparison, in the USA - 39%, in Japan - 30%, Germany - 16%. The contribution of high-tech industries of the Russian Federation to GDP equals 3%, and in leading countries of the world - 35% [16, p. 4]. The true revival of Russia is impossible without a new stage of industrialization (neo-industrialization) and the transition from a raw material to an innovative development model. This in turn should lead to an increase in the social status of Russian scientific and technical specialists.

The events that unfolded in our country in the period from the mid-1980s to the mid-2000s led to the accumulation of destructive phenomena in engineering and research activities, which together caused not only deep stagnation, but also the degradation and destruction of engineering the country's potential, the fall of the status of engineering and technical specialists in the public consciousness. Only by activating engineering, scientific, technical and research activities, elevating the social status of an engineer directly related to the prestige, significance and public recognition of his profession, having developed a new model of engineering education, one can ensure the basic conditions for successful modernization of the Russian economy. Moreover, our country has already developed a strong engineering school with significant traditions and culture, which incorporates the best experience of the Soviet period and pre-revolutionary Russia. In the traditions of the Russian engineering community, high standards of science education are laid down, combined with practical work and service to their country. The basis of this is laid in the military roots of the engineering profession, which determines such basic qualities of an engineer as personal modesty, discipline, responsibility for the assigned job, sense of duty and sense of duty [10].

A breakthrough in engineering in Russia was made in the 30s – 40s of the 20th century, when, thanks to industrialization, there was a rapid leap in the development of heavy industry, several thousand new factories were built. After the Great Patriotic War, the rivalry between the USSR and the USA in the development of armaments and military equipment intensified. All this led to high achievements in a number of industrial sectors: metallurgy, machine-tool construction, aviation, and space. Sharp industrial growth led to an increase in the need for the number of qualified personnel, which led to an increase in the number of engineering universities, research institutes, design bureaus and research and development industries. The base of application of possibilities by the engineering community was rapidly expanding. At the same time, the engineering community itself faced a serious historical challenge.

By the early 1980s, on the one hand, there was an excess in the engineering personnel, on the other hand, their demand was sharply reduced. The subsequent collapse of the country led to a fall in industrial production, the elimination of research and industrial enterprises: office buildings and shopping centers began to appear in the place of factories and research institutes. As a result, the number of jobs for engineers and designers has decreased, their work has been devalued, and, as a result, low social status and a sharp decline in personal income. However, the decisive reason for the decline of the prestige of the profession and stagnation was the lack of opportunity to conduct creative intellectual work using modern competitive material and technical base. This circumstance finally put an end to the development of engineering and created the conditions for a massive outflow of scientific and engineering personnel, first from the industry and then from the country. Began the process known as «brain drain» [15].

Table 1. Characteristics of raw materials and innovative development models [17, p. 27].

Raw Model	Innovative Model
1. The main factor is the development and export of non-renewable natural resources	1. The main factor is the development and realization of the creative potential of the workforce
2. Stagnant structure of production and the economy as a whole.	2. Continuous diversification of production and the economy as a whole.
3. Lack of demand for science and limited demand for highly qualified personnel	3. Increasing demand for science and highly qualified personnel.
4. Lack of institutional framework for innovation development.	4. Development of institutional framework for innovation development.
5. The trend of monopolization of the extraction and export of raw materials.	5. The absence of a monopoly on the development and production of new types of goods and services.
6. Strengthening social polarization	6. Increasing the proportion of the middle class
7. Obstacles to the formation of a civil society	7. Strengthening the role of civil society in economic and political life
8. The state as a spokesman for the interests of commodity monopolies	8. The state as an active participant in the innovation process

Russia began to lose on the scientific and engineering potential not only the United States and European countries, but also the countries of Southeast Asia and Latin America. Research and search engineering work on technically and morally outdated equipment did not bring satisfaction to Russian engineers. From year to year, the effectiveness of experimental development has decreased, which led to extremely negative consequences in the entire Russian economy. The engineering community has ceased to be a priority of state policy. Engineers began to massively change the scope of their activities, leave their profile specialty in any other area where they could earn money to support their families and be in demand. The science and technology policy developed by the state at that time was inadequate to the challenges of modern times. The overall result of this policy is a serious industrial and scientific-technical lag of the country.

While the engineering community was actively developing in the countries of the West, in Russia it degraded, collapsed and reduced in number. For example, in the United States, by the mid-1990s, the American Association of Engineering Societies numbered 800,000 members, the American Society of Engineering Education, about 10,000 individual members, and about 300,000 institutional members. According to the president of the American Society for Engineering Education (ASEE), prof. U. Buckenen, “ASEE played a significant role in developing curricula for engineering education, improving teaching methods, improving the quality of teaching, and also in shaping state policy in the field of engineering education [5, p. 59]. At this time, Russian associations of engineers practically did not function, neither the society nor the state supported them, which made them small and inoperable. Legislation regulating the engineering activity and protecting the main products of its labor (inventions, utility models, etc.) is not developed to the necessary extent, and the bodies ensuring its execution do not do this in accordance with the needs of the engineering community. As a result, the former level of work with inventors and rationalizers is lost. Therefore, it is easier and more profitable for an inventor to take his invention to Europe or America, to patent and implement it there, than in Russia. Inventors from small cities of Russia often do not even consider the possibility of patenting their inventions - it is expensive and too problematic.

Since the early 1990s, in developed countries, programs that have been actively financed and supported by the state have been adopted at the legislative level. There is a so-called “bounty hunt”, which allows you to organize the search for and attract to your side talented engineers from other countries. As a rule, these are people who carry out scientific activities and conduct unique research. As a result, our country experienced a massive outflow of scientific and engineering personnel with significant knowledge, new developments, which were taken to the West. Given that in the creation of these developments in the course of several decades, money was invested by the Soviet state, and then the Russian Federation, the complex losses of the domestic economy exceed $ 1 trillion.

Thus, by transferring the personnel and the results of their work to competitors, the USSR and the Russian Federation actually directly financed foreign economies. The countries that attracted our specialists — valuable scientific personnel — received a powerful impetus for economic development. One of the first in this series is the UK.

There is no long-term program in Russia to support a number of promising industries and industries, as well as important engineering specialties, without which successful competition with foreign manufacturers of similar products is impossible. This is aggravated by the fact that foreign manufacturers are significantly ahead of up to 25 years, Russian in most products.

At the same time, one should not forget about the quality potential of future engineers. Our country needs technocratic professionals who are able to effectively use the achievements of modern science as a leading productive force. In turn, the global challenge facing Russia should affect the increase of the prestige, the living standard of an engineer and his material wealth, making this profession more attractive from the point of view of the realization of a professional career. According to the President of the Russian Federation V.V. Putin, «there should be an intolerable situation when a person with a profession in demand, qualification for his work gets meager wages, literally making ends meet» [27].

It is important to provide social support to an engineer who wants to stay in the profession, and, moreover, is conscious of it, not only as a tool to ensure well-being, but also as a vocation. Any modernization of the economic basis, which is paving the way for itself through reforms, is faced with the task of significantly changing the consciousness of the leading actors of neo-industrial development. In addition to changes in working conditions, which objectively entails the transformation of public institutions, it is important to take into account the correction of these processes by the public consciousness, which also has a significant impact on their formation. Therefore, an approach that takes into account the identity of future engineers, related to their professional rationality, conscious choices, peculiarities of corporate culture and the overall position in society will be productive here.

Since we are talking about the complex technological, economic and political independence of Russia, its economy requires significantly more qualified engineering personnel [9]. According to a study by the All-Russian Center for the Study of Public Opinion, dedicated to choosing the ideal profession for children, the engineering profession in 2017 became more attractive in comparison with 2005 (9% vs. 4%) [25].

Table 2. Rating of occupations, built on answers to an open-ended question: “If you have growing up children, grandchildren, what profession, occupation would you like for them? and not having growing children or grandchildren)

	2005 г.	2006 г.	2009 г.	2012 г.	2017 г.
Doctor, medical field	12	18	20	24	35
Soldier	4	6	4	6	13
Lawyer	13	17	16	14	11
Working professions (including mechanics, machinists)	10	0	5	4	10
Economist, financier, accountant	14	16	17	13	9
Engineer	4	5	7	8	9
Athlete, trainer	1	3	1	4	7

Computer technology programmer	7	7	7	6	7
Creative professions (Designer, fashion designer, artist, actor)	2	6	3	6	6
Police officer	0	0	1	0	5
Builder	0	3	4	2	5
Interesting, which one will choose	13	7	4	7	4
Leader, manager	4	7	4	5	3
Politician	1	0	1	1	3
Scientist, researcher	2	1	2	2	3
Services (hairdressers, drivers, cooks, trade workers)	1	3	1	2	2
Businessman, businessman	7	5	4	4	2
Pilot, cosmonaut	0	0	0	2	2
Agronomist, agricultural specialist	1	2	0	1	2
Translator, linguist	1	1	2	2	2
Demanded, highly paid	6	2	4	3	2
Journalist	1	0	1	0	1
In the oil and gas industry	0	0	1	2	1
Psychologis	1	0	0	1	1
Musician	0	0	0	0	1
In the civil service	2	2	1	4	1
Banker, banking	2	4	2	4	1
Architect	1	0	0	0	1
Other	4	6	11	3	8

Consider how the assessment changes the characteristics of the status of the profession of an engineer after 5-10 years of work. The data of comparative evaluations of future research engineers and young (up to 35 years) production engineers are presented in Table. 3

Table 3. Evaluation of the attractiveness of the engineering profession,% [2, P. 13]

	Graduate	Students	Young Engineers
Characteristics with high attractiveness ratings			
Provides the opportunity for exploratory search, invention, creative expression	63	70	77
It implies the need for continuous professional development, self-education	87	91	98
Gives you the opportunity to better realize their potential, to show their abilities	74	70	80
Socially relevant, socially significant	72	60	56
Provides opportunities for career growth and advancement	69	59	62
Involves connection with modern technology, the latest technology	88	84	81
Provides favorable working conditions (work schedule, employment stability)	54	44	70
Characteristics with relatively low attractiveness ratings.			
Provides decent wages	47	19	21
Assumes autonomy, independence, lack of petty care, regulation	51	40	46
Gives the opportunity to acquire status in society, in the eyes of others (the high prestige of the profession)	59	52	51

In young (up to 35 years) industrial engineers, as in future research engineers, the image of the engineer profession looks attractive in its informative characteristics. Theoretically, engineering activity provides the opportunity for exploratory research, invention, although at this workplace, in this subdivision, work may not be related to inventions. This situation is typical for more than half of the surveyed young production engineers. Over the past five years, they did not have, and today there are not even any proposals and inventions under development [2, pp. 162 - 165].

The opportunity for career growth and professional advancement is more real. Appreciation of practitioners of this characteristic of the engineering profession to some extent justified. Of the young engineers surveyed during the survey, 5% occupy top positions, as many occupy middle management positions at large industrial companies, and 9% work as foremen [8]. The respondents' recognition of creativity and innovation as the main and defining characteristics of the engineer correlates with the ambiguity of public recognition supported by low remuneration for engineering work.

III. DISCUSSION

Domestic sociology has a rich tradition of studying the scientific and technical intelligentsia: engineers and technicians. The great successes of the USSR in space exploration, in the implementation of peaceful and military nuclear projects, in the construction of the largest hydroelectric power plants, etc., raised the prestige of scientists and engineers to unprecedented heights. In the rankings of the prestige of the professions that were formed at that time on the basis of special studies, these professions occupied the leading ones. In the 1960s – 1970s.

Scientists and engineers were the main characters of many popular films, performances, novels, poems and songs, in which the most important qualities of this breed of people were intelligence, versatile erudition, high moral standards, initiative, dedication, dedication and selflessness, as well as indifference to the material side of work and life in general. The special social role of engineers was reflected in large-scale studies that created monumental portraits of the professional group [20, 26, 28, 29]. Social attitudes and professional values of engineers were compared with real behavior in the labor process, social factors of engineers' labor productivity, conditions determining their motivation were analyzed: and the nature of work, working conditions and life, etc. Engineering youth also acted as a separate object of study, in particular, the problems of their preparation and professional adaptation were considered [19].

The term «technical specialist» (or «technical engineer») was used in Soviet sociology to describe a broad group of people involved in the provision of the production process, the development and implementation of technologies and technical solutions. These included both “technicians” - those who received specialized secondary education in technical specialties and held relevant positions, and engineers — all those who had a higher technical education and held positions ranging from the foreman at the production site to the leading and chief designer in research institutes, design offices, laboratories. At the same time, the nomenclature of posts corresponding to the status of “technical specialist” and “engineer” was extremely broad and at the end of the Soviet period included positions that only partly related to equipment and technology — engineers for labor rationing, labor organization, training and etc. The tendency of inflation of the professional status due to the loss of the close connection of the official position with the tasks performed was noted in the 1970s: V.A. Yadov called this process “professional polyphony” [26, P. 13]. The overproduction of engineering personnel, accompanied by the deterioration in the quality of their training, the disproportionate increase in engineering positions at enterprises and the associated degradation of the functions of this group of workers, as well as the massive deprofessionalization of engineers and the relative decline in wages made the profession’s prestige almost inevitable.

The term «engineering and technical specialists» was chosen as the basic concept of the study. It unites a wide range of specialists primarily with technical, engineering and natural science (physics, mathematics, chemistry, automated control systems and computing) educated in highly skilled intellectual work.

This work is associated with the maintenance and updating of existing equipment and hardware and software, as well as the design, development and implementation of new equipment and technologies, including the creation or adaptation of software.

This definition is based on the tradition of the social classification of technical specialists (both abroad and in Russia) and takes into account classical approaches to the definition of professionals of this type: for example, R. Merton, speaking of the engineering profession, first of all spoke of specialists who are engaged in the invention and design of production equipment [23]. The word invention means a new, technical solution of the problem, with a significant difference, giving an economic effect. Inventive activity allows modernizing the old and creating new equipment and technology at a fast pace, ensuring cost reduction and improving the quality of products.

Under the conditions of late capitalism, the process of studying equipment (J. Habermas) continues to gain momentum, as a result of which the gap between the less skilled labor of direct producers (workers) and high-class engineers is increasing [14]. Consequently, the production process began to form with science and technology a single system, which led to an increase in the leading role of the engineer in it, and therefore to the requirements of raising its social status.

Therefore, without pleading the role of the worker, it is important to note that in many respects it is the intellectualized labor of the engineer (since it is the engineer who is the science representative who is most integrated in industrial production) who actively influences the growth of labor productivity and is the main source of surplus value. From this we can conclude that the engineer is a representative of the most progressive labor class, practically applying the achievements of modern science in production. Moreover, a class of engineers provides support for the so-called class compromise under the conditions of late capitalism. Therefore, engineers who objectively claim financial security, social protection, and public recognition must be considered as an important source of social stability and order.

The social status of an engineer is necessary for the formation of his productive socio-professional identity. In this regard, it is important to talk about the formation of a productive identity, that is, the identity of a professional, more conducive to the disclosure of the creative potential of the individual. Social status should provide an individual with a dignified existence and act as a significant fact of public recognition. The latter circumstance, namely, the symbolic capital of public recognition (in P. Bourdieu's terminology), along with cultural (knowledge, skills) and economic (decent wages) capital, will together constitute the social status of the engineer. Social capital - public resources, which are the source of various benefits (prestige, money, power). Status recognition as symbolic capital is the result of the conversion of cultural and economic capital. If, for any reason, a scientific and technical specialist cannot effectively quickly convert various types of capital, then his status faces a real problem of recognition.

The characterization of the engineer's status, considered with reference to the concept of "capital", which received a systematic justification within the framework of the sociology of labor approach of P. Bourdieu, has a threefold character, which presupposes an ongoing process of acquiring (concentrating) capital and the corresponding stages [4]. The latter, in our case, are closely intertwined with the long process of socialization of the engineer, where the key moment of the formation of status identity is associated with the acquisition of professional knowledge at the university level. It is at this stage that the student, through his diligence and labor, acquires cultural capital, which will then be recognized by society and guaranteed by a diploma. In this example, it is easy to follow the process of social capital conversion, when the cultural capital of a student-engineer in the form of his skills, abilities, professional and general cultural knowledge through the state recognition of public recognition established by the state into symbolic capital - a diploma.

However, this is only the beginning of the acquisition of full-fledged professional status, since the young specialist engineer must be involved in the actual process of social labor. He has yet to invest the acquired (accumulated) cultural and symbolic capital, which is already his accumulated labor, in the actual production process, despite the fact that this stage of labor socialization itself is accompanied by the acquisition of full-fledged economic capital of wages.

Despite the fact that the role of economic capital at this stage of labor socialization of an engineer becomes dominant, other forms of social capital still retain an important function in constructing his status as a recognized professional community. For example, due to the experience gained at the enterprise, the engineer will continue to concentrate cultural capital, and in connection with his promotion and growth of his economic well-being, his possession of symbolic capital will increase.

In this regard, it is important to point out that status itself contains the legitimate ability to possess one or other significant roles, therefore, the three forms of social capital considered are, firstly, a real resource for maintaining and acquiring social status, and secondly, forms of correspondence between self-esteem the individual and his public recognition. Compliance with the above conditions will lead to a sharp reduction in economic deprivation (dissatisfaction), and the status of a Russian engineer will testify in favor of recognizing his services to society.

IV. RESULTS

An important component of the formation of the identity of the professional group and the daily practices of professional work is the professional subculture, which can be interpreted as a constellation of ideology, values, beliefs, language, typical forms of activity characteristic of the professional community [13, pp. 55 - 65]. Professionalism reflects to a greater degree external requirements, whereas professional culture is what allows members of a professional group to adapt to these requirements. Professions form not only repositories of formalized knowledge, but also various codes for constructing meaningful interpretations of people, events, objects that are common in the professional world. These are, firstly, the patterns of consciousness that are formed as a result of various trajectories of professional socialization - in the structures of specialized education, in the workplace; secondly, unconscious, indefinite schemes that allow individuals to cope with unforeseen situations in a «professional way».

These codes, as well as the possession of socially significant and rare knowledge and skills, contribute to group cohesion, since for their reference group they set the general structure of values, beliefs, norms and interpretations of the actions of group members. Various aspects of professional culture in this field were considered by many researchers. The professional transformation of scientists who joined the service in industrial corporations was studied: having rendered professional autonomy for permanent hiring, they became «professional technicians». The conflict of organizational values and professional culture of engineers was investigated in the context of the professional autonomy of engineers in an industrial organization. Later, the cultural-raer role of engineers in promoting management models was described, based on replicating the best practices in the field of production and adaptation of managerial ideas based on their own ideas about rationality.

The basis of the professional culture of engineering and technical specialists is a few universal elements that, to one degree or another, belong to their work practices and significantly influence the worldview. First, the applied techniques and technologies, computational algorithms predzatat models of understanding the world and the organization of work on the basis of rationality, which are amenable to calculation and are based on clear, logically and mathematically verified patterns. It can be said that technical specialists act in accordance with the principles of «engineering and technical rationality» and «consistency», which are well described in the works of Soviet and Russian researchers within the framework of the philosophy of science and technology [18]. This rationality leaves an imprint not only on the labor process, but also on the worldview that has received the definition of a technocratic one. L. Boltanski and L. Theveno call this system of thinking a scientific and technical hail, where the strength of scientific fact works, the action is instrumental, and the order is based on «the effectiveness of people and things, their effectiveness, productivity, their ability to ensure normal functioning, to benefit , meet the needs» [3].

Secondly, it is traditionally considered that the culture of technical specialists is masculine precisely because of the rationality of the knowledge used, as well as relations with equipment and technology, whose development has been in the hands of men for centuries. In recent decades, many studies have been conducted abroad on the gender aspects of professional culture of technical specialists, where it has been shown that masculinity begins to be cultivated from the moment of professional socialization, and women are expected to adopt dominant patterns of behavior and thinking. However, the growth of diversity and the number of specialties related to programming and computer technologies gradually change the situation with the dominance of masculine ideology in these areas, although where technicians deal with hardware and material objects of technology, professional culture remains predominantly masculine. In a study of the role of women in engineering, it was noted that from engineering education to the technician's workplace, masculine engineering culture clearly declares itself. At the same time, female engineers not only demonstrate the knowledge, competencies and skills necessary for this occupation, but also accept masculine attitudes and standards of interaction in the labor process [11].

In Russia, the situation with masculinity as a universal element of the culture of technical specialists is more complex. Unlike Western countries, the gender contract in the USSR provided for women to fulfill their professional role, as well as the function of "caring for children and unpaid household work". The Soviet state encouraged women to obtain higher education and their employment as engineering and technical workers. Thus, the Soviet legacy of the national culture of professional technical specialists does not give grounds to consider masculinity as its characteristic feature. However, the memoirs of Soviet technical experts show that often in the design bureaus and the scientific research institute, women-engineers were assigned the role of administrative officers who were solving not technical but bureaucratic tasks. It should be borne in mind that in various technical and engineering occupations, traditions and specific labor are different: with respect to the work of programmers, masculinity is not such a bright element of professional culture, as, for example, among civil engineers [24].

Thirdly, the motto «Work a lot and hard» is traditionally considered to be an adequate approach to its activities by technical specialists and the rhythm inherent in it. Analysis of publications shows that a lot of hard work was taken not only in the Soviet design offices and research institutes of the period of the Great Patriotic War and the postwar technological breakthrough, but also in laboratories and design departments of large capitalist ones. The focus on overcoming technological challenges, the difficult search for the best engineering solution is a universal element of the professional culture of technical specialists. The installation on the creative component of labor was revealed by Soviet sociologists: a study of young engineers showed that more than 70% sought to get into research and design work (only 12% agreed to work in production) [1]. In the study of design institute engineers, one of the results was the negative attitude of engineers towards the forced execution of non-creative technical tasks that «a schoolchild can also do».

The development of new products is an attractive job, which is considered by professionals as the quintessence of creative engineering. However, it has a stressful nature: inconsistencies, overlays and other forms of "organized hysteria" accompany the need to be creative, productive, savvy and comply with the requirements and limitations of management.

In other words, the pleasure of work is closely connected with the creative component of labor and even what can be called “the torments of creativity”, and the creation of a new, invention can be considered a key element of the professional culture of technical specialists.

Finally, when describing the elements of this professional culture, we should not forget about the influence of the organizational context on its components. Today we can say that corporate rules and organizational culture have no less influence on the professional culture of programmers than the results of professional socialization. R. Collins and other researchers noted that engineers and technicians rather early went through relative deprofessionalization, since they were involved in industrial production with its managerial control and a decrease in the level of professional autonomy [12].

Large companies also develop their own technological standards, which form the content of technical specialists' competences, localizing their knowledge. The phenomenon of “certified professionalism” has emerged: the basis for legitimizing the status of a technical specialist is determined not by engineering education, but by various kinds of corporate certificates issued after passing the standards, mastering various international systems of technological standardization ISO, etc. For many employers, this kind of «certification professionalism» means more than a diploma of higher technical education. And this is a global trend affecting all groups of programmers and technicians in Russia and abroad.

V. CONCLUSION

The selected elements of the professional subculture of engineering and technical specialists are universal, because, first, they have been noted as characteristic of this professional group by researchers from various countries for quite a long time (starting with the mass distribution of engineering classes). Secondly, they in one or another proportion form the core of the professional cultures of the majority of technical technical groups - ranging from those who perform routine work on debugging and maintenance of equipment at the grassroots production level to classes that require the development of new ideas and products in the field radio electronics, programming, communications, etc.

The Russian specificity of this phenomenon deserves attention: on the one hand, it contains elements of the culture of Soviet engineering and technical specialists, and on the other hand, there is a reception of behavioral models and professional communication, which are broadcast by global corporate standards. The demand for scientists and highly educated professionals in the economy and other areas of Russian society is of key importance for innovative development. Without a real demand for creative and highly qualified personnel, expressed in the creation of appropriate jobs, in raising the social prestige of engineering and technical specialists, the creative potential of society cannot be realized.

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СОЦИАЛЬНЫЙ СТАТУС И ПРОФЕССИОНАЛЬНАЯ СУБКУЛЬТУРА ИНЖЕНЕРНЫХ И ТЕХНИЧЕСКИХ СПЕЦИАЛИСТОВ В СОВРЕМЕННОМ РОССИЙСКОМ ОБЩЕСТВЕ: ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ

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Аннотация

В статье рассматриваются социальный статус и основные элементы профессиональной субкультуры российских инженерно-технических специалистов в контексте отечественных и зарубежных концепций и на основе эмпирических данных, отражающих оценку привлекательности профессии инженера в современном российском обществе.

Особое внимание уделено творческому аспекту деятельности инженерно-технических специалистов, их роли в инновационном развитии общества.

Ключевые слова: инженерные и технические специалисты, профессиональная субкультура, престиж, инновационная деятельность.

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