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Research paper

Statistical Analysis as the Basis for the Practice of Modernizing Personnel Management: International Experience

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Abstract

The article is devoted to the issues of modernization of personnel management from the standpoint of the results of the statistical analysis of its framework conditions, studied as social and mass phenomena. Terms of implementation of work with the staff received extensive coverage in the scientific literature, profile-oriented to management, economics, sociology, psychology and law. Insufficient research base for statistical conclusions on the scale of phenomena, their groupings, and dynamics makes it difficult to work on timely diagnosis of the real model of personnel management and the formation of a vector of its modernization. The article systematizes the concept of the components of the two-contour framework, which defines the playing space of work with personnel, shows the classifications of the working age, family models, systematizes the scientific concepts of generations and the dynamics of value systems. Grounds for modernizing the practice of personnel management in organizations are justified. The methods of statistical analysis are given: observation, groupings, and classifications.

Keywords: *Employability; Framework conditions for personnel management; Life expectancy; New generations; Personnel aging; Reappraisal of values.*

1. Introduction

Work with personnel in an economic entity, on the one hand, must follow new trends: economization, structuring and internationalization. On the other hand, activities in this area are limited to a two-contour framework. This means that the employer can act in a clearly defined playing field, players, judges, and even the quality of the "coverage" to which depend on the current level of development of the state and society.

2. Materials and methods

General provisions of the authors' research are compiled on the basis of the theoretical and conceptual provisions presented in the works of Russian and foreign researchers in the field of conceptual and applied positions of personnel management.

The transformation of the contents of the frame conditions of personnel management is highlighted by scientists of various fields of activity, which confirms the interdisciplinary and international nature of the problem.

Three demographic realities such as the "baby boom", an increase in the duration of life and a decrease in the birth rate became the starting point of the study [1], aimed at realizing the involvement of representatives of generation X in the activities of organizations. Scientists have identified four groups of respondents aged 35-45 who have different perceptions of work and expectations about an employer.

From the standpoint of statistical analysis of the birth rate and poverty of the population, a study was conducted in Iran, which identified clusters due to social and cultural status, in which the differences between demographic indicators of fertility and living standards. Based on the results of the study [2] the possibility of implementing new government approaches to increase population growth with an emphasis on the socioeconomic status of the family was revealed.

From the point of view of resolving the conflict between interests and perceptions about the quality of life of workers of young and older ages, the problem was examined [3]. The idea of modernizing the policy and practical actions to work with personnel in organizations aimed at the sustainable employment of workers, taking into account the areas of differences of several generations, was considered in the work [4]. Scientists considered changes in work with personnel caused by aging workers, the changing nature of labour, and the globalization of the economy.

Possible violations of labour legislation in relation to ethnic minorities in the transformation of personnel management were analyzed [5]. As a basis for the research, such functions of personnel management as selection in hiring, assessment of employees' activities, remuneration and development of personnel strategy were taken. Based on 42 semi-structured interviews with two first and second-generation ethnic groups working in the Greater London area, it was concluded that the deterrent factors for the development of an integrated HRM system were the time for its development, the cost and quality of expertise knowledge.

Intergenerational cooperation as an important source of individual learning and a tool for creating, transferring and preserving organizational knowledge was the idea of an article [6]. The authors found that age management was possible through four determinants, such as national legislation, intergenerational cooperation programs, higher education systems, institutions of public culture.

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3. Results

3.1. Characteristics of the external contour of the frame conditions of personnel management

3.1.1. Labour legislation

The external outline of the framework conditions has included, firstly, the legislative framework determining the norms of individual and collective labour law required for compliance by the employer and the employee. Subject area of legal framework conditions has been the basis, implementation and termination of employment relations, the formulation of labour contracts, issues of labour remuneration and the conclusion of tariff and collective agreements; health and safety, unemployment benefits.

3.1.2. National economy

Secondly, the specifics of the economy, which determines the vector, quality and structural elements of the workforce, and, accordingly, the level of competencies that employees need to master for its implementation. Globalization and the associated trends in the internationalization of business, the need for innovation and high quality of products or services have been crucial for the formation of new knowledge among employees and staff specialists. In accordance with this, the competitive advantage of the employer has been a talented, motivated, non-resilient staff. In addition to their search in the labour market, adaptation to working conditions and development, personnel management should form mechanisms for retaining talents in the organization.

3.1.3. National education system

The third is the system of national education. Definition of education as a framework condition for working with staff is due to the fact that its quality and ability to rebuild in accordance with the current trend of economic development depends on the quality and guarantee of labour supply in the labour market. The Russian reality is that, on the one hand, the problems of education in the country repeat the situation of Western countries. This is a shift in priorities in the choice of work, and accordingly in its run-up, an educational institution from technical colleges and institutes that train engineers, to those that train for the services sector. Identical to Western is also the problem of the poor orientation of young people to receive working professions. The profession of a driver of a truck, bus, bulldozer, electrician, welder and others becomes scarce.

The problems of education in Russia are as follows.

Educational institutions, especially higher ones, differ significantly in the quality of the services provided. This means that provided in hiring diplomas on higher education indicate different levels of competence of their owners. Those who received professional training are unevenly dispersed throughout the country. In their mobility, the educated population calls the remoteness of some regions, unfavourable climatic conditions, and poorly developed industrial and social infrastructure, high cost of transport services for movement to the central and southern regions of Russia.

In the Soviet Union, these issues were resolved; firstly, by the availability of only state educational institutions of all levels, to become a student of which were able to be a limited number of entrants - gifted, successfully completed their schooling and passed the entrance tests. Secondly, the system of distribution of graduates to places of work throughout the country. The state provided an opportunity to receive education on a budgetary basis, guaranteed a place of work, presenting a list of enterprises for compulsory training for three years. Currently, the institute for Alumni Distribution does not function, new levers for regulating the movement of specialists have not yet been found.

3.1.4. State social policy

Fourthly are the state (also social) policies, including the extension of working life. Improving the quality of life, full medical care affects the growth in the number of older workers. This means that the management of personnel in organizations should be prepared to monitor working conditions with the aim of adapting them to an extended biography of recruitment and to maintaining the work capacity of older employees.

In international statistical practice, various interpretations of working age are used (Table 1).

According to the statistical analysis, in 2000, at the time of the change of centuries in Germany, for example, 22% of workers aged 60-64 were employed in organizations, 47% in the USA, 52% in Sweden, and about 65% in Switzerland [7].

Table 1: Classification of countries on the basis of the lower limit of working capacity (international statistics)

No	Country	Age indicator, years
1.	Argentina, Benin, Bolivia, Brazil, Pakistan	10
2.	Greece, Italy	14
3.	Austria, Canada, China, France, Japan	15
4.	United Kingdom, United States, Russia, Sweden	16
5.	Poland	18

A detailed statistical study carried out by the Federal Statistical Office of Germany revealed the following features of the transformation of the structure of employed personnel:

1) 1989-1996 - the share of employed at the age younger than 20 years decreased from 32 to 25 percent (100 percent - all employed in all age groups);

2) between 2000 and 2010 the share of workers increased from 53 to 58 percent. At the same time, the share of workers over 60 was insignificant. The strongest group of employees are workers aged 40-50 who, as a "moving dune", at the latest, by 2020, will become pensioners.

3) due to the age development of this group mainly in the period 2015-2020 the proportion of employees starting from the age of 50 increases from 31 to 34 percent.

Statistical analysis and calculated forecast indicators of change in the structure of employed allowed determining the foreseeable planning horizon for the formation of activities related to work with personnel. It was determined that if in the next five years the organizations try to confront the situation through target models of hiring and training, in the future they will be able to avoid unbalancing the structure of the employed.

Developed in Germany, operational activities for designated positions are focused on three groups of important actions that should answer the following questions:

1) How is it possible to motivate aging staff to productive work? How to create a working rhythm of the busy generation "50 +" before retirement? Here it is necessary to refer to the use of personnel in the organization;

2) How to organize the internal development of personnel so that the process of "life-long learning" became possible until the very moment when they were released? Here is the talk about the function of raising the qualifications of employees and recognizing their potential;

3) What measures to maintain and protect health should be implemented so that workers before retirement age reach a healthy and efficient status? In this case, it is necessary to use the social function of work with personnel.

The "50+" policy in Germany includes, among others, the following activities:

1) Step-by-step introduction of the retirement age of 67 years in 2012 to 2029.

2) State support for employed workers, implemented on the basis of the Law on Increasing the Chances of Employment of Older Persons, for the implementation of the provisions of which the German Federal Labour Agency has allocated only from 2007 to

2011 430 million Euros. In the group of events: a combined wage that has reached the age of 50 and started less paid work than before. There is a compensation for professional development of employees aged 45-50 years. There is a registration of employees who have reached the minimum of 52 years of age for temporary work under a fixed-term contract.
3) Support for managers at the organization level. It is implemented through the introduction of the position of "temporary manager" employed in the organization, primarily in the course of restructuring, in connection with associations and new strategic orientations, as well as when they are closed or relocated to a new location. Portrait of a typical "temporary manager": 1) age from 45 years, 2) a talented manager with extreme stress tolerance, tolerant to the stresses, 3) ready to sell their professionalism and 4) having contacts with the upper levels of power in economic structures. Along with an impeccable biography, in which, at least 10 years of experience of management experience - also 3-4 employers from different industries.

3.1.5. Public Interest Unions

According to statistical data, moving towards post-material values, we see a tendency to satisfy the need for expressing one's own opinion in the non-professional spheres. Through participation in parties and unions, the exercise of the protected right to freedom and the participation of workers in the political movement. The employer must take into account that, in addition to employment in the enterprise, employees can be involved both in a well-known and large-scale political movement and be members of local alliances, for example, gardeners or pedestrians. Any of these movements creates a sense of collective confidence among its members in defending their interests, including those related to the main employment.

3.1.6. Conjuncture

The fifth is the conjuncture. According to statistics, for example, during a period of economic crises, it was possible to retain qualified personnel who undertook measures for its employment through training other professions.

3.2. Statistical analysis of the specifics of the internal contour of the personnel management frame conditions

The internal framework of the framework conditions is dependent on the external in its content and includes demographic, social and technical trends that influence the formation of personnel management.

3.2.1. Demographic changes

The changes in the number and composition of the population that occur as a result of its natural (fertility, death rate) or mechanical (migration) movements allow the employer to formulate in a timely manner the policy of finding, employing, retaining employees in the organization.
For example, statistical analysis of the age structure includes taking into account three factors: fertility, probable life expectancy and migration balance (Table 2).

Table 2: Age-specific fertility rates in the USSR and Russia*, ‰

Age of a mother, years	1938-1939	1958-1959	1982-1983	1990	1995	2000	2005	2010	2015
15-49, including	139.5	88.7	76.0	55.2	35.9	32.1	36.9	47.8	54.6
15-19	32.8	29.2	41.6	55.0	44.8	27.4	27.4	27.0	24.0
20-24	214.4	162.2	**184.6**	**156.5**	**112.7**	**93.6**	**88.4**	87.5	90.0
25-29	**230.6**	**164.8**	133.3	93.1	66.5	67.3	77.8	**99.2**	**112.6**
30-34	183.5	110.1	72.5	48.2	29.5	35.2	45.3	67.3	83.0
35-39	131.7	66.6	32.3	19.4	10.6	11.8	17.8	30.0	39.8
40-44	68.1	24.1	8.0	4.2	2.2	2.4	3.0	5.9	8.3
45-49	19.0	5.0	1.1	0.1	0.1	0.1	0.2	0.3	0.4

Note: *Born on average per year per 1000 women of the appropriate age. Systematized. By b the authours according to [8]

The reason for the narrowed reproduction in Russia was the economic conditions. The perestroika period affected fertility rates, in accordance with which the contingent enters the working age, which in its size cannot satisfy the demand of the labour market.
According to the data of Table 2, in addition to the tendency of a significant decrease in the birth rate, in 2010-2015, again, as in the period 1938-1939, 1958-1959, the greatest intensity of birth occurred in the age group of mothers -25-29 years. As a rule, these are personnel with a professional background and some work experience. This means that in order to exclude the loss of important competencies in the work with personnel, measures should be envisaged that include, the possibility of remote labour, the motivation of mothers to reduce parental leave through additional payments (payment of nurseries, the invitation of nannies, etc.), programs to overcome the "reality shock" for young women who are starting to work again.
Life expectancy has been gradually changing in the direction of increasing age through progress in medicine, hygiene, nutrition, growth of material well-being, working conditions.
Historical statistics show that, for example, in European Russia (survey of the Orthodox population of 50 provinces), the probability of death at the age of up to one year was 327 ‰ for boys and 283 ‰ for girls in 1874-1883. In 1913 out of 1,000 newborns in the first year of life, 269 died. In Central Asia, where in those years there was no medical assistance, these indicators were above 300 ‰, in some periods - 600-700 ‰ (Table 3).

Table 3: Mortality from some infectious diseases in Russia and countries of Western Europe in 1905-1909, for 10 000 thousand people [9]

Cause of death	Russia	England	Sweden	Norway
Pox	50.8	0.1	0.01	0.2
Measles	106.2	30.9	6.0	6.0
Scarlet fever	134.8	9.5	6.9	3.9
Diphtheria	64.0	16.9	20.3	21.6

In 1913 in European Russia one doctor was for 18 thousand people, in Siberia for 24 thousand, in the Caucasus for 28 thousand, in Central Asia for 61 thousand people. In the prerevolutionary period, only 128 doctors worked in the territory of the modern state of Uzbekistan, 234 medium medical personnel. In the calculation for 10 thousand inhabitants this was 0.3 doctors, in rural areas - 0.06.
A generalizing and inverse characterization of the dynamics of mortality is the life expectancy of the population. According to the calculations of the well-known statistics of M.V.Ptukhi [8] in the years 1896-1897 in European Russia, the life expectancy of the Russian population was 27.5 years for men and 29.8 for women; for Ukrainians - 36.3 and 36.8; Estonians, respectively, 41.6 and 44.6 years. There was an obvious slight difference in the life expectancy of women and men among Russians, Ukrainians and Belarusians, which was associated with the high mortality of women. At the end of the 19th century, the life expectancy of most Western European countries ranged from 40 to 50 years.
The indices of the average life expectancy in the USSR and Russia are given in Table 4.

Table 4: Dynamics of average life expectancy in the USSR and Russia, years*

Years	Men	Women	The difference in the life expectancy of women and men
1838-1850 (assessment for European Russia)	24.60	27.00	+2.4
1874-1883 (assessment for European Russia)	28.00	30.20	+2.2
1896-1897 (50 provinces of European Russia)	31.43	33.36	+1.93
1926-1927 (the European part of the USSR)	41.93	46.79	+4.86
1938-1939	44.00	50.00	+6.0
1958-1959	64.42	71.68	+7.26
1968-1971	64.56	73.53	+8.97
1980-1981	61.53	73.09	+11.56
1990	63.73	74.3	+10.57
1995	58.12	71.59	**+13.47**
2000	59.03	72.26	**+13.23**
2005	58.92	72.47	**+13.55**
2010	63.09	74.88	+11.79
2015	65.92	76.71	+10.79
2016	66.5	77.1	+10.6

Note: Systematized by the authors on [8, 10]

Migration of the population and, above all, of the able-bodied population occurs for different reasons. These can be professional reasons (getting a job, relocation, pendulum travel), family (moving to a new place of residence, changing the marital status, medical indications on the climate of residence, etc.), as well as economically or politically conditioned circumstances (terrorism, military actions and.

In any case, its size and nature influence the formation of work with personnel in organizations. According to statistical forecasts, there is practically no alternative to hiring foreigners in many European countries. For example, only the German economy by 2030 can experience a 10-million labour shortage.

Movements of the able-bodied population also vary depending on whether they occur inside the country or in another state.

Global changes in the economy, immigration attractiveness and government agreements on the expanding rights and opportunities of citizens to legal movement predetermined the relevance of the study of migration flows abroad [11].

The demographic consequences of the restructuring of the 1990s had a negative impact on the Russian labour market.

Firstly, traditional "national" ideas about candidates for employment and already working staff were transformed: in their structure the share of representatives of the former union republics: Belarus, Uzbekistan, Ukraine, etc. The deficit of the own labour force, the change in the values of young people, including the nature of the work, its intensity, the need to obey, and the growing economic and social attractiveness of employment in Russia, these trends, according to experts, will also have a positive development also in the future.

Secondly, because of the new requirements for jobs and the changing profile of employee competencies, expatriates often fail to meet the hiring test. Statistics show that the situation with natural and mechanical movement of the population leads to the fact that in the labour market competition for the acquisition of better labour. Success in the competitive struggle is only for those employers who develop innovative strategies for providing their structures with personnel in a timely manner; develop and implement attractive forms of caring for employees.

Thirdly, the age composition of the population significantly affects the structure of training of medical personnel. If, for example, in the future the number of births increases, it will be necessary to train more paediatricians in advance. If in the future the number of elderly people increases in the country, then it will be necessary to increase the training of cardiologists and related equipment for the treatment of cardiovascular diseases, etc., and for such a restructuring of the work of only higher education institutions it will take years.

3.2.2. Public changes and reassessment of values

According to scientific concepts, including data from statistical observations, intra-generational changes [12] relative to life attitudes, dominant needs, attitudes towards work and family, the style of decision making, etc. (Table 5).

Table 5: Systematization of scientific concepts of generations

	Postwar ("silent") generation	Generation of "baby boomers"	Generation X	Generation Y	Generation Z
Age	1945-1955	1955-1965	1965 -1975	1975-1985	1985-1995
What is imprinted in youth	Economic revival (the "economic miracle")	Social changes (women's movement, movement for civil rights, movement "Hands off Vietnam")	Social instability (high divorce rates, environmental problems)	New technologies	Pisan-Schock*, monitoring, Facebook
Basic Settings	realism	idealism	scepticism	optimism	realism
Impressed technologies	telephone	TV set	automobile	digital technology	"The Generation of the Network"
An experienced leadership style	authoritarian	cooperative	delegated	Visionary, involving workers in managing change processes	
The orientation "work-private life"	work	work	private life, not looking at work	Work and private life	private life (and work)
Decision-making process	pragmatic, with a small number of alternatives	according to beliefs	with a sceptical attitude to basic information	with a rational approach to basic information	suggestions and advice from friends

Note: *Pisan-Schock – The International Research Organization for Economic Cooperation and Development (Headquarters in Paris) conducted a study on the assessment of knowledge of schoolchildren in a number of European countries. The low knowledge of schoolchildren in Germany caused a shock, according to which additional budgetary financing was provided for school education.

Unlike previous generations with dominant material values, for the generation of Y and Z post material values are increasingly becoming a priority.

As part of the material wealth of the population of modern Russia with the existing income differentiation are:

- firstly, the security (the country's defence capability, maintaining peace and order in society, fighting crime).
- secondly, physiological needs, including the maintenance of high rates of economic growth, price stability, including housing and communal services, the growth of wages and incomes of the popu-

lation, taking into account the harvest on the backyard or suburban site.

Post mortem values are grouped in the same way in two positions:

- self-realization of citizens through the protection of their right to free expression, gradual shifting of the priority of money to the priority of the idea;
- satisfaction of social needs: the right of decisive voice and influence in the workplace, in local self-government and politics; the desire for greater friendliness and individuality in society, planting and design of urban neighbourhoods, etc.

In the theory and practice of personnel management, such an expression as the "trend of changed values" became colloquial. The trend gives an idea of the evolution of the basic needs of the employed population. The most significant values of modern youth: the desire for self-development with decreasing readiness for submission, the enjoyment of life (hedonism [13]), emancipation, the diminution of the importance of work as a duty, the importance of free time, ecology, preservation and maintenance of physical health (Figure 1).

The main consequences of changing values transforming work with personnel are shown in Figure 1 [14].

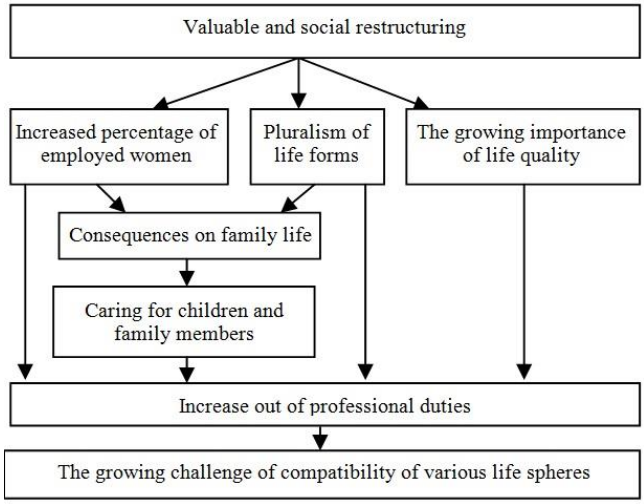


Fig.1: Consequences of changing values

The values of autonomy, self-realization became the consequence of *the increase in the proportion of women in the structure of employed*. The model of "two working", and therefore earning, in the family influenced the change in its composition, role representations, career expectations.

Marriage for the majority of women without education and profession in pre-revolutionary Russia was the only and traditionally possible life guide, outside of marriage as a personality, she was not perceived by society. According to the ideas of the church and current legislation, the wife's duty is to obey her husband, render him "pleasure and affection". Without the husband's consent, the wife could not get a profession, change her place of residence, dispose of property. Economic and social factors were a brake on the dissolution of marriage at the request of the spouses as a mass phenomenon. Only the supreme church body, the Holy Synod, which was authorized to divorce in a limited number of cases on the basis of the legislation adopted under Nikolay I. The basis for the dissolution of marriage under these laws was "the unknown absence of spouses", the "deprivation of all the rights of the state of one of the spouses", more often - conviction and sentence to a long term of imprisonment, adultery, confirmed by testimony. "Evidence of adultery" by the beginning of the twentieth century was the cause of 95% of all registered divorces. In the years 1882-1886 among the Orthodox population of Russia, 5.1 thousand divorces were issued with a divorce rate of 0.02% (0.02 divorce per 1000 population), in 1912 - 3.5 thousand, the divorce rate was 0.03%.

The tendency of individualization has become the reason for the emergence of *pluralism of life forms*, primarily concerning family models (Table 6).

According to statistical research, the wave of transformation of the forms of family communities is born in states with a high level of economic development; within the country and goes from industrial cities to agrarian settlements.

In accordance with this, the study of families is carried out, including, firstly, with the construction of their large grouping on the basis of belonging to western or eastern cultures (Table 6).

Table 6: The grouping of family models on the basis of belonging to a particular culture (an example of selective features)

Family in Western culture	**Family in the traditional Islamic-Turkic culture**
1. The concept of equal professional employment of both spouses, family autonomy. Relations with relatives are in the case of common interests or family needs. The institute for relations with neighbours is weakening. Family control over deviation from social norms such as drunkenness, drug addiction, and other dependencies is carried out in equal measure with respect to men and women.	1. Following the concept "sevgi, saygı, şeref and namus*", which determines the structure of values and is a guarantee of close unity in the social network of society, the implementation of social control and comprehensive support
2. The upbringing of children is increasingly carried out in the light of their opinions, interests, and abilities. In education, as a rule, there is no rigid directive; methods of persuasion are used, reinforced by the power of examples. Parents adhere to the need to develop children's independence, focus on results, initiative, and the ability to prove their own position.	2. Children must obey their parents, be obedient, conformable in behaviour, and show loyalty. At the same time, there remains a guaranteed high degree of cohesion, unity and mutual dependence. In educational purposes and the process of raising children, as a rule, individualism, autonomy, initiative, activity or curiosity are undesirable.
3. Substitution of authoritarian behaviour in the family supporting and delegating. Decision-making is mutual after discussion of the problem by the spouses. In separate family cultures the power of the spouses is divided according to the life spheres of the family. Husband and wife have the same rights to spend free time outside the home and often spend leisure time autonomously: in fitness clubs, gyms and playgrounds, on excursions and on tourist trips. Communication with guests often takes place away from home. Lack of gender priorities in attitudes and behaviour.	3. The structure of authority: adults have the right of authority over children, men - over women. Girls are dependent and must be able to adapt to a certain (dictated) situation.

Note: *Sevgi – tenderness, love; saygi- respect, reverence, şeref – honor, namus – honor, dignity, integrity

Secondly, the grouping of family communities is carried out on a historical basis - with the isolation of patriarchal (South-Eastern Europe) and North-Western models (Table 7).

Table 7: Grouping of models of the European family on the historical basis of its formation (an example of selective features)

Patriarchal big family in South-Eastern Europe	Forms of family in North-Western Europe
Domination (power) of the ancestors (grandfather and grandmother) / priority of blood relationship	***The dominance (power) of parents / the priority of the economy (economic component)***
Father's house as a residence: sons remain in the household of their father, women (daughters-in-law) enter the family through marriage	Marriage, first of all, is considered as the basis of economic independence, the priority of economic activity
A family is large: priority to	Virtually there are no large families.

family associations according to economic considerations	A large farm is formed from a married couple, to which unmarried brothers and sisters are attached, students, pupils, servants.
Strong manifestation of clan thinking	Clan thinking is weak (except for families of aristocrats)
Early marriages, a small proportion of free from marriage bonds (unmarried), as well as illegitimate children	Late marriages, a large proportion of the population is not married, many illegitimate children
Repressive sexual morality: the bride must be transferred to the family of her future owner of the chaste.	Relatively liberal sexual morality

According to the data in Table 7, in the Western model of the family there is no frame of reference formed by parents and grandparents. This means that, on the one hand, it is possible to develop a family culture, manifested, among other things, by gradual withdrawal from the financial dependence of parents, the independence of decision-making, the expression of one's own opinion. On the other hand, a new round of development of family culture, devoid of the norms of behaviour approved by previous generations, is accompanied by mistakes, career zigzags.

In the focus of detailed statistical studies of the European family - its geographical location with the allocation of groups: the city or the countryside.

Features of the agricultural sector in the formation of the family structure: first, the priority of the community; secondly, the attitude to the family as an economic and political institution, close communication with relatives and neighbours, etc. Family in the European industrial sector is characterized by the priority of the individual, formed for the realization of reproductive function; places of work and residence are separated from one another, a marriage of love. There is an independence of the family from the related clan. Dominant relationship is parents - children. There is a separation of social and personal life spheres; the tendency to neo locality, a small number of children, increased investment in their upbringing.

According to the research, the traditional family communities with the representatives of several generations living under the same roof first came to the nuclear, then the non-local forms of the family. At the present time - homeless people without a family establishment, guest marriage without joint management, homosexual partnerships (Table 8).

Table 8: Features of family formations Post-modern (example of selective features)

Group	Content
Subject of family legitimization	Children are the reason for the legalization of the family, in earlier models, it was vice versa
The nature of motherhood	Family planning led to the fact that pregnancy from an unexpected surprise* became a valid life decision and acquired a new status of importance.
Children	1) after the decrease in the importance of the economic side in the upbringing of children comes an increase of a mental side. 2) increased attention in education to such qualities as independence and self-esteem
Degree of freedom in behaviour	The cost of own premarital and jointly acquired property, in addition to affecting the degree of individual freedom in the formation of the sphere of close relations, at the same time preserves the risk of their collapse.
Family relationships	1) due to lengthening life expectancy and reducing the number of children, family members have more vertical and less horizontal family relationships (grandchildren - grandparents) 2) marriage has lost its monopoly on living together, retains the significance of this, above all, the desire of children.

Note: *According to the selective statistical survey "Moscow-66", the newlyweds were divided on the self-assessment of their knowledge of contraception (on a five-point scale): 1 point (bridegrooms 3.3%, brides-6.0%), 2 points - respectively, 7.8 and 8.1, 3 points - 21.5 and 18.7, 4 points - 41.6 and 36.3, 5 points - 25.4 and 30.9. No response - 0.4% of grooms.

In accordance with this, family formations can be represented by seven models (Table 9) [15].

Table 9: Classification of family models

	Family model (form)	Example
A	Normal root family	Traditional relationship father-mother-child
B	Family as a normative ideal	Separately residing people with an orientation toward the normative family ideal
C	Partnership without children	Couples without children, according to their own decision or other circumstances
D	Partnership with unmarried relationships, having children, but with normative orientation.	Modern family "Both earning", in which each of the spouses has earnings.
E	Post-modern marital relations without children, but with normative orientation	Marriage based on a professional career and intimate partnership
F	Exercising parental responsibilities without registering family relationships and striving for the normative ideal of the family	Jointly living partners without children, a family consisting of one parent (single father/mother)
G	A married couple with a registered marriage with children (but without a normative ideal)	Alternatively, targeted parents who at the same time are in a registered marriage

In the legalization of a "same-sex family" at the international level, a weighty role has been played by the result of the Cairo International Conference on Population and Development (1994): the principle of the 9th Program of Action on Population Regulation enshrines the equality and equivalence of different types of sexual unions, including same-sex unions (Table 10).

Table 10: Classification of countries on the basis of the legal status of same-sex unions

The legal status of same-sex unions	Countries
Legalized at the national level	Argentina, Belgium, Denmark, Iceland, Spain, Canada, Netherlands, New Zealand, Norway, Portugal, Uruguay, France, Sweden, South Africa
Legalized at the regional level	USA (Iowa, Washington, Vermont, California, Connecticut, Massachusetts, Maine, Maryland, New York,), Mexico, Brazil
Legalized other forms of same-sex marriage (in the country as a whole)	Andorra, Australia, Austria, Brazil, Great Britain, Hungary, Germany, Israel, Ireland, Colombia, Liechtenstein, Luxembourg, Slovenia, Finland, France, Croatia, Czech Republic, Switzerland, Ecuador
Legalized other forms of same-sex marriage (in certain regions of the country)	Venezuela, United States, Mexico

The consequence of the realization of the pluralism of life forms was increased divorce, separation, single parenting.

3.2.3. Technological changes

The influence of technological changes on the evolutionary processes in the labour market is mainly due to new characteristics of the workplace. In the administrative sphere, these are modern information and communication technologies with the dominant role of the Internet, electronic mail and others. In the industrial sphere it is robotics. In general, this has determined a reduction in the number of employed and the development of relevant business processes with a modernized content of labour and the need for qualification adaptation to them, changes in the forms of communication. The consequences of technological changes were the mental and physical overloads. The requirements for work with personnel are new approaches to leadership, employee development, incentives, working time.

3.3. Measures for the modernization of work with personnel, taking into account the new content of the framework conditions

The applied aspect of the achievements of greater efficiency in the work with personnel, taking into account changes in the contents of the double-contoured framework of conditions, is given in Table 11.

Table 11: Influence of new conditions on personnel management

Condition (factor)	Influence on work with the personnel
1. *Demographic changes*: - - declining population growth rates (negative natural increase) - - longer life expectancy	- The relevance is still recessively supported by individual groups of employed workers: 1) age of employees* ("50+ programs", new forms of training, changing the mode of work, mutual transfer of competences in the programs "formation of implicit knowledge", "Young teach senior", ergonomic developments in the modernization of workplaces, etc.). 2) women (adaptation programs to overcome the "reality shock" for employees after maternity leave, reduction of leave to care for children through programs of social and medical provision for children, etc. - Preservation and support of workers' health (working conditions, promotion of a healthy lifestyle, medical examination of workers, balanced nutrition in organizations, season tickets for fitness clubs, etc.)
2. *Changes in values and society:* - growth in the proportion of women employed; - quality of life claims	- Accounting for the compatibility of various vital dominants: flexible work schedule, remote work, part-time work, etc. - Support for women: the formation of women's councils, the implementation of "Women's Career" programs, the organizational kindergarten, and quotas for children in municipal institutions, the "Mother's Day" program for women leaders and employees in responsible positions, etc. Flexible working hours through self-determination [15].
3. *Technological changes:* - - efficiency (productivity, productivity), short deadlines for solving problems, rapid change of innovative developments - mobility	- staff development through programs: Multiple Management, Brain-Dominanc – Koncept, Workshops, E-Learning, suggestological methods. - preservation and maintenance of health (the formation of health management, the prevention of traditional (alcohol, gambling, smoking) and new forms of addictions (drug addiction, workaholism, medication, computer, shopping) through seminars, medical examinations, etc. Culture of a healthy lifestyle and sport in the organization.
4. *Economy*: - Deceleration of entry into retirement age - Change in employment forms	- staff development - support for women (including the payment of "parental money" for fathers, [16] formation in the organization of stress management, conflict-management, self-management [17] and older workers,

Note: In the countries of the European Union, only from 2005 to 2011 employment of the population aged 65-69 years increased from 8.8 to 10.5%, 70-74 from 4.3 to 5.2% [18].

4. Conclusion

Changes in the framework conditions of personnel management in organizations are transferred from individual to the category of a mass public phenomenon, which is an indicator of their study by statistical science. The approaches to statistical analysis shown in the article: observation, groupings, classifications, selective surveys, allow, firstly, to form the basis for a detailed presentation of the reasons for the transformation of work with personnel, conditioned by the legislative base, peculiarities of economic development, technological renewal, education policy, demographic events, intra-generational values. Secondly, they update the scientific understanding of the growth of non-professional duties as a consequence of progress in the structure of employment by increasing the proportion of working women, expanding post material values, realizing the need for a high quality of life, changing family forms. Thirdly, they allow formulating a policy for the search, recruitment, use and retention of qualified personnel in the organization, taking into account the shift in the priorities of the participants in the suitability formula: the employee and the organization. If earlier the formula was "the suitability of a person to work place", then it has become "the suitability of a place of work to a person", now at the present time it is "mutual suitability".

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